

NEW SPECIES AND NEW RECORDS OF HERSILIIDAE FROM AUSTRALIA, WITH AN UPDATED KEY TO ALL AUSTRALIAN SPECIES (ARACHNIDA: ARANEAE: HERSILIIDAE)

Fourth supplement to the revision of the Australian Hersiliidae

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ABSTRACT

One new species of the genus *Hersilia* Savigny and Audouin and 9 new species of the genus *Tamopsis* Baehr and Baehr from Western Australia, Northern Territory, and New South Wales are described: *Hersilia mimbi* sp. nov., *Tamopsis riverinae* sp. nov., *T. facialis* sp. nov., *T. piankai* sp. nov., *T. harveyi* sp. nov., *T. gibbosa* sp. nov., *T. mainae* sp. nov., *T. triangularis* sp. nov., *T. gracilis* sp. nov., and *T. longbottomi* sp. nov. New records of several other *Tamopsis* species are presented, and the ranges of some species are considerably extended. An updated key to all Australian species of Hersiliidae is presented to replace the key in the revision of the Australian Hersiliidae (Baehr and Baehr 1987). The insufficient knowledge of the habits especially in the group of low-eyed species of the genus *Tamopsis* prevents a better understanding of the phylogenetic relations and biogeography in this group.

INTRODUCTION

Soon after having finished the third supplement (Baehr and Baehr 1992) to our revision of the Australian Hersiliidae (Baehr and Baehr 1987) we received another sample of Hersiliidae from the Western Australian Museum (by courtesy of Dr. M. S. Harvey) that included a new species of *Hersilia* and a further nine new species of *Tamopsis* mainly from Western Australia, as well as specimens of several other recently described species. Although we had decided not to write a further supplement to our revision, until representative material came to hand, we were once more surprised by the results of the highly successful recent collecting efforts of the staff of the Western Australian Museum, Perth, who provided us with so many new and interesting specimens from Western Australia, Northern Territory, and inland New South Wales. Therefore, we decided to present another paper as a fourth supplement to our revision. It is further evidence of the inadequate taxonomic and distributional knowledge of the Australian Hersiliidae, especially in Western Australia. But at the same time it demonstrates, how much a revision can initiate successful collecting work.

Including the species newly described in the present paper, altogether 17 new species of *Tamopsis* have been described since initiating our revision. Although we had extended our key for each new species in the former supplementary papers (Baehr and Baehr 1988, 1989, 1992), we now feel that the key and the supplements to it, together with the present supplements, would be impractical. Hence we include herein a completely updated key to all known species of Hersiliidae from Australia. Nevertheless, this key will not replace our revision nor the supplements, because exact determination is usually only possible with reference to the figures of male palpus and female epigyne and vulva.

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The sequence of the species follows the systematic order in our revision. Descriptions and measurements were taken as indicated previously (Baehr and Baehr 1987, 1988, 1989, 1992). Eye ratio was taken in the following order: AME:ALE:PME:PLE. Maps are provided for the newly described species and for those species whose range has been significantly extended in the present paper.

The sample contained a few juvenile specimens which we did not identify and only tentatively assigned to certain species. These are therefore not included in the present paper.

METHODS

As the fine structures of the female vulva are highly important for identification of species, the vulva should be dissected and examined under the microscope for correct determination. Appropriate immersion of the vulva that makes visible the delicate chitinous structures is crucial for this purpose. We found that the immersion in "Hoyers Gemisch" (see Kraus 1984) gives the best results, because even delicate, almost translucent chitinous membranes are easily seen. It should be noted that this is not always possible when other solutions are used.

LABELS

All labels of type specimens have been exactly copied including all codes and dates of capture, because we believe that the label is a genuine part of any type specimen. For the sake of reproducibility we chose the same procedure in non-typical specimens, too.

ABBREVIATIONS

ALE	anterior lateral eye
AME	anterior median eye
bS	basal segment of posterior lateral spinneret
LB	total length of body
LL	total length of legs
PLE	posterior lateral eye
PLS	posterior lateral spinneret
PME	posterior lateral eye
tS	terminal segment of posterior lateral spinneret
I	1st leg
II	2nd leg
III	3rd leg
IV	4th leg
>	larger or more than
<	smaller or less than
NSW	New South Wales
NT	Northern Territory
WA	Western Australia
AM	Australian Museum, Sydney
CBM	Collection B. Baehr, München
WAM	Western Australian Museum, Perth

SYSTEMATICS

In our revision (Baehr and Baehr 1987) all known species of the former genera *Chalinura* or *Tama*, respectively, were transferred to a new genus *Tamopsis*. Except for the singular *Hersilia australiensis* Baehr and Baehr, all other Australian species of Hersiliidae so far described are included in the genus *Tamopsis*. For the generic diagnoses of both genera see that revision. Most important characters for species differentiation in both genera are the structure of the male palpus and of the female epigyne and vulva.

Genus *Hersilia* Savigny and Audouin, 1827

Hersilia Savigny and Audouin, 1827: 317; Baehr and Baehr 1987: 354.

For differentiation from the genus *Tamopsis* see key in Baehr and Baehr 1987: 354.

KEY TO AUSTRALIAN SPECIES OF GENUS *HERSILIA* SAVIGNY AND AUDOUIN

1. Median apophysis of male palpus simply spoon-shaped. Flagellum of embolus short, base of flagellum deeply hollowed (Baehr and Baehr 1987 Figure 1). Female epigyne with trapezoidal median scapus (Baehr and Baehr 1987 Figure 2). Western part of Arnhem Land, northernmost Northern Territory *australiensis* Baehr and Baehr
- Median apophysis of male palpus complex, at base excised, posterior part at apex deeply hollowed. Flagellum of embolus elongate, base of flagellum barely hollowed (Figures 1, 2). Female epigyne with quadrate median scapus (Figures 3, 4). Kimberley Division, northwestern Australia *mimbi* sp. nov.

Hersilia mimbi sp. nov. (Figures 1-4, 25)

Holotype

Male, W. A., Mimbi Cave 18.45S, 126.05E, 23 July 1990, A. F. Longbottom S.465 (P27/17-18) (WAM 91/35).

Paratype

1 female, same data (WAM 91/36).

Diagnosis

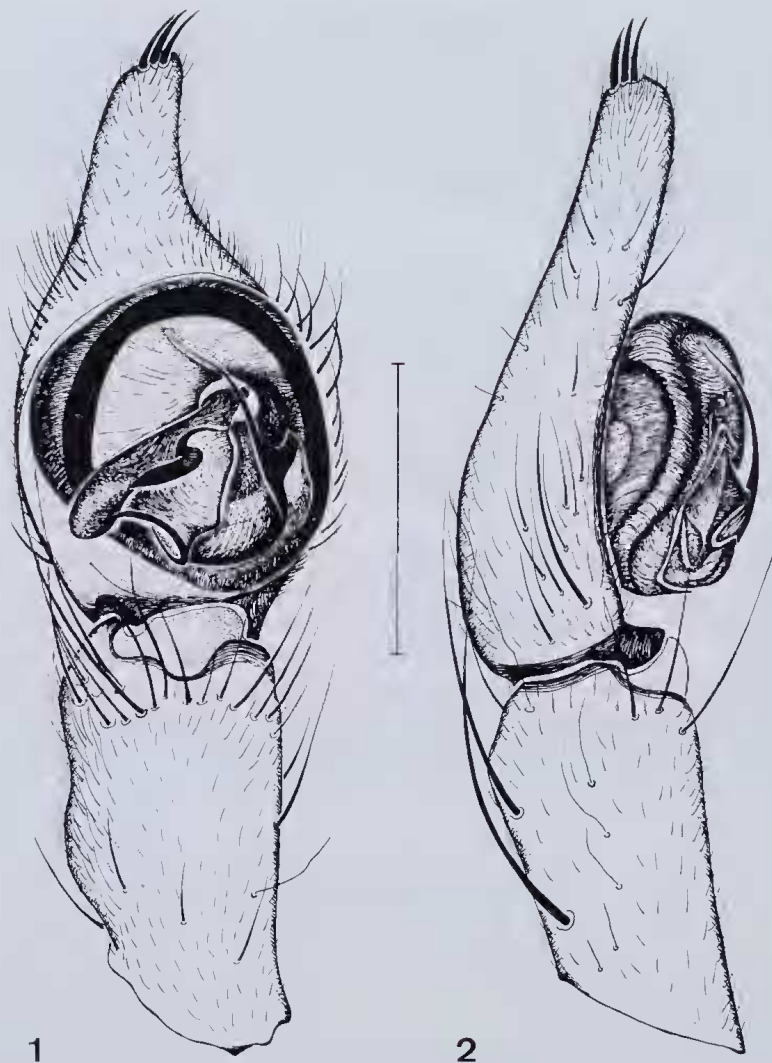
Light coloured, very long-legged species, distinguished from *Hersilia australiensis* Baehr and Baehr by much lighter colour, relatively longer legs, straight, more complex median apophysis of male palpus, longer flagellum of embolus the base of which is not deeply hollowed, and quadrate median scapus of female epigyne.

Description

MALE HOLOTYPE

Measurements

Length: 7.5 mm; cephalothorax length: 3.0 mm; width: 2.9 mm; abdomen length: 4.5 mm;



Figures 1 and 2 *Hersilia mimbis* sp. nov. Male palpus. 1. Ventral view. 2. Lateral view. Scale: 0.5 mm.

width: 3.45 mm. Legs: I: 48.8 mm, II: 44.3 mm, III: 14.5 mm, IV: 39.5 mm; ratio: 1:0.91:0.30:0.81. Ratio LB/LL: 0.15. PLS length: 6.0 mm; bS: 1.1 mm; tS: 4.9 mm. Length ratio PLS/abdomen: 1.33. Eye ratio: 1:0.60:1.10:1.14.

Colour

Whitish to light yellow, area around eyes dark. Dark pattern of abdomen greyish, rather inconspicuous. In anterior half with lancet-shaped median stripe. Lateral borders narrowly dark. Posteriorly with several transverse lines. Legs and PLS light yellow, barely patterned. The very light colour and inconspicuous pattern may be due to fading in alcohol or to the occurrence of the type series in a cave.

Cephalothorax

About circular, narrower than abdomen. Eye area strongly raised, lateral border concave. Clypeus almost as high as eye area. PLE largest, PME larger than AME. Distance AME/AME c. two thirds of diameter of AME, distance AME/ALE slightly < diameter of AME, distance PME/PME c. half of diameter of PME, distance PME/PLE < diameter of PME. Chelicerae c. 2 x as long as wide, anteriorly with 3 large, posteriorly with 4-6 small teeth. Sternum pentagonal, sparsely hirsute.

Abdomen

Much longer than wide, ovalish. Dorsal surface with 4 pairs of circular muscular pits. Ventral muscular pits in a narrow v-shaped arrangement, though very difficult to see. PLS much longer than abdomen, tS very elongate.

Legs

Measurements see above. Very elongate compared with body size. III comparatively short. Metatarsus divided, distal part c. half as long as proximal part.

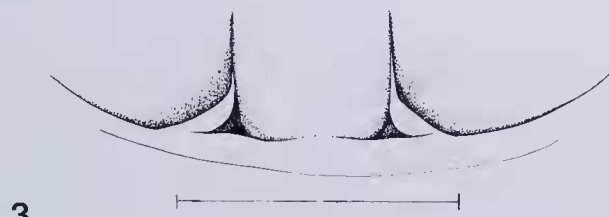
Palpus

Cymbium with 3 apical spines. Anterior part of median apophysis spoon-shaped, at base excised, posterior part at apex deeply hollowed. Embolus spirally coiled around median apophysis, apex free, very elongate, whip-like, embolus barely excised at base of flagellum.

FEMALE PARATYPE

Measurements

Length: 7.8 mm; cephalothorax length: 3.0 mm; width: 2.9 mm; abdomen length: 4.9 mm; width: 4.15 mm. Legs: I: 32.5 mm, II: 31.4 mm, III: 11.8 mm, IV: 28.8 mm; ratio: 1:0.97:0.36:0.87.



3



4

Figures 3 and 4 *Hersilia mimbi* sp. nov. Female. 3. Epigyne. 4. Vulva. Scales: 0.5 mm.

Ratio LB/LL: 0.24. PLS length: 6.3 mm; bS: 1.2 mm; tS: 5.1 mm. Length ratio PLS/abdomen: 1.29. Eye ratio: 1:0.75:1.2:1.28.

Colour

Same colour as in male, but dark parts even more indistinct.

Cephalothorax

About circular, narrower than abdomen. Eye area and clypeus as in male. Size of eyes and distances between them like in male, though AME relatively smaller. Chelicerae as in male.

Abdomen

Slightly longer than wide, considerably wider than cephalothorax. Arrangement of dorsal and ventral muscular pits as in male. PLS slightly shorter in relation to abdomen than in male.

Legs

Measurements see above. Considerably shorter than in male. III relatively longer.

Epigyne

Very simple, with a quadrate scapus.

Vulva

With small, lobate ventral receptaculum seminis, a small, about circular dorsal receptaculum seminis, and a short intraductory duct.

Variation

Apart from some sexual variation in shape of abdomen and length of legs, little variation noted.

Additional material examined

1 juvenile, collected with the types. It is tentatively alluded to this species, but not designated paratype.

Etymology

Alludes to the type locality, *Mimbi* cave.

Distribution

Southern Kimberley Division, northwestern Australia. Known only from type locality.

Habits

Collected in a cave, but collecting circumstances and distance of locality from entrance of the cave unknown.

Relationships

This species is certainly closely related to the other Australian species of genus *Hersilia*, *H. australiensis* Baehr and Baehr, though it is slightly more apomorphic by virtue of the light colour, the even longer legs, and the markedly more complex structure of median apophysis of male palpus. At present, however, it is not known, whether this is an obligate cavernicolous species.

Genus *Tamopsis* Baehr and Baehr, 1987

Tamopsis Baehr and Baehr, 1987: 355; 1988: 13; 1989: 310; 1992: 62.

For diagnosis and differentiation from the genus *Hersilia* Savigny and Audouin see Baehr and Baehr (1987: 354).

KEY TO AUSTRALIAN SPECIES OF THE GENUS *TAMOPSIS* BAEHR AND BAEHR

This key updates all species described since the revision (Baehr and Baehr 1988, 1989, 1992) and the species described in present paper, and it replaces the key in our revision.

1. Males 2
Females 30
2. Dorsal muscular pits falciform, very elongate. Abdomen elongate, almost parallel. Median apophysis apically with large, hook-shaped process (Baehr and Baehr 1987 Figures 3, 4; Baehr and Baehr 1992 Figures 1-3) 3
Dorsal muscular pits circular or elliptoid. Abdomen usually shorter and wider. Median apophysis different, hook-shaped process, when present, much shorter 5
3. Cephalothorax wider than abdomen. Process at apex of median apophysis longer, much surpassing lateral border of palpus. Basal part of lateral apophysis very wide (Baehr and Baehr 1987 Figure 3). Southwestern Australia *amplithorax* Baehr and Baehr
Cephalothorax not wider than abdomen. Process at apex of median apophysis shorter. Basal part of lateral apophysis much narrower (Baehr and Baehr 1987 Figure 4; Baehr and Baehr 1992 Figures 1-3) 4
4. Apex of lateral apophysis cap-shaped, tapering but slightly convex (Baehr and Baehr 1987 Figure 4). Eastern central Queensland *platycephala* Baehr and Baehr
Apex of lateral apophysis hollowed, apically widened (Baehr and Baehr 1992 Figures 1-3). Central western part of Western Australia, northern part of central Northern Territory *depressa* Baehr and Baehr
5. Eye area just slightly raised, clypeus low, at most c. $\frac{2}{3}$ x as high as eye area. Median apophysis apically not ring-shaped 6
Eye area strongly raised, clypeus as high as eye area. Median apophysis apically ring-shaped 16
6. Median apophysis apically with large, acute, horizontal, hook-shaped process (Baehr and Baehr 1987 Figures 10, 12). Rather large species, length >4 mm 7
Median apophysis apically without large, acute, hook-shaped process. Medium sized to small species, length <4 mm 8
7. Median apophysis without preapical scopula-like organ, apex of lateral apophysis not excised, nor strongly hooked (Baehr and Baehr 1987 Figure 10). Southeastern Australia *eucalypti* (Rainbow)

- Median apophysis with preapical scopula-like organ, apex of lateral apophysis excised and with strong hook (Baehr and Baehr 1987 Figure 12). Eastern Queensland and New South Wales *brisbanensis* Baehr and Baehr
8. Very small species, length <3 mm. PLS very short, c. 1/2 x as long as abdomen. Palpus dorsally with densely setose area (Baehr and Baehr 1987 Figure 6). Eastern Queensland and New South Wales *brachycauda* Baehr and Baehr
- Larger species, length >3 mm. PLS longer, at least 3/4 of length of abdomen. Palpus dorsally without densely setose area, sometimes with spinose area 9.
9. Palpus dorsally with spinose area. Median apophysis contorted, apex spoon-shaped. Legs and PLS very elongate, PLS longer than abdomen (Baehr and Baehr 1987 Figure 8). Eastern Queensland, northeastern New South Wales *tweedensis* Baehr and Baehr
- Palpus dorsally without spinose area. Median apophysis contorted, apex strongly excised, with a membraneous area within. PLS less elongate, at most as long as abdomen... 10
10. AME not much smaller than PME, mostly larger. Lateral apophysis not deeply excised at apex 11
- AME considerably smaller than PME. Lateral apophysis deeply excised at apex (Baehr and Baehr 1987 Figure 23). Southeastern Australia *raveni* Baehr and Baehr
11. Lateral apophysis apically not much contorted. Median apophysis less deeply excised at apex, bent horizontally (Baehr and Baehr 1987 Figure 14). Northeastern Queensland *daviesi* Baehr and Baehr
- Lateral apophysis strongly contorted. Median apophysis deeply excised at apex, bent obliquely (Baehr and Baehr 1987 Figures 16, 17, 21; Baehr and Baehr 1992 Figures 4-6; Figures 7, 8) 12
12. Median apophysis very deeply excised. Lateral apophysis deeply channelled at apex (Baehr and Baehr 1987 Figure 21; Baehr and Baehr 1992 Figures 4-6) 13
- Median apophysis less deeply excised. Lateral apophysis not conspicuously channelled at apex (Baehr and Baehr 1987 Figures 16, 17; Figures 7, 8) 14
13. Median apophysis with wide excision. Lateral apophysis sinuate (Baehr and Baehr 1987 Figure 21). Southeastern Queensland, eastern New South Wales *queenslandica* Baehr and Baehr
- Median apophysis with narrow excision. Lateral apophysis barely sinuate (Baehr and Baehr 1992 Figures 4-6). Southwestern Australia *distinguenda* Baehr and Baehr
14. Latero-apical part of median apophysis not swollen, without sharp edge. Lateral apophysis not much longer than median apophysis, apex sharply bent, contorted (Baehr and Baehr 1987 Figure 16). Southwestern Australia *kochi* Baehr and Baehr
- Lateral part of median apophysis swollen, with sharp edge. Lateral apophysis much longer than median apophysis, apex not sharply bent, not much contorted (Baehr and Baehr 1987 Figure 17; Figures 7, 8) 15

15. Face without conspicuous light spots near eyes. Lateral apophysis at apex not excised (Baehr and Baehr 1987 Figure 17). Central Queensland..... *centralis* Baehr and Baehr
Face with conspicuous light spots near eyes. Lateral apophysis at apex excised (Figures 7, 8). Western part of Western Australia north to Pilbara region *facialis* sp. nov.
16. Median apophysis without a scopula-like organ within apical membranous area. Apex of embolus freely projecting beyond lateral apophysis (Baehr and Baehr 1987 Figures 27, 29), or hidden in lateral apophysis (Baehr and Baehr 1989 Figures 1, 2)..... 17.
Median apophysis with a scopula-like organ within apical membranous area. Apex of embolus hidden in lateral apophysis (Baehr and Baehr 1987 Figures 31, 33, 37, 39, 41, 43; Baehr and Baehr 1989 Figures 3, 4, 7, 8; Figures 19-22) 20.
17. Apex of embolus hidden in lateral apophysis. Apex of median apophysis with a peculiar, excised, projecting process within, without a hooked process on lateral rim (Baehr and Baehr 1989 Figures 1, 2; Baehr and Baehr 1992 Figures 9-11) 18.
Apex of embolus freely projecting beyond median apophysis. Apex of median apophysis without a projecting process within, but with a hooked process on lateral rim (Baehr and Baehr 1987 Figures 27, 29) 19.
18. Apical process of median apophysis shorter. Lateral part of apex of lateral apophysis not widened nor excised (Baehr and Baehr 1989 Figures 1, 2). Northwestern Australia south of Great Sandy Desert *nanutarrae* Baehr and Baehr
Apical process of median apophysis longer. Lateral part of apex of lateral apophysis distinctly widened and excised (Baehr and Baehr 1992 Figures 9-11). Southwestern Australia, northwestern Victoria *transiens* Baehr and Baehr
19. Eye area moderately raised, oblique near top. Median apophysis with rather small apical hook-shaped process. Lateral apophysis very simple, without special features, embolus straight, apex free (Baehr and Baehr 1987 Figure 27). Northernmost Northern Territory, northern tip of Queensland *arnhemensis* Baehr and Baehr
Eye area strongly raised, sides concave. Median apophysis with a strong, hook-shaped process. Apex of lateral apophysis trumpet-shaped, spirally coiled, embolus running along apical rim of lateral apophysis (Baehr and Baehr 1987 Figure 29). Southwestern Australia, western Victoria *circumvidens* Baehr and Baehr
20. Median apophysis not much contorted, base medially barely excavate. Apex without sharp, elevated lateral rim, median membranous area not deeply sunken in (Baehr and Baehr 1987 Figures 31, 33; Baehr and Baehr 1988 Figure 1) 21.
Median apophysis more strongly contorted, medially excavate. Apex with more or less elevated, sharp lateral rim, median membranous area deeply sunken in (Baehr and Baehr 1987 Figures 37, 39, 41, 43; Baehr and Baehr 1989 Figures 3, 4, 7, 8; Figures 19-22) 23.
21. III relatively short. Apical process of median apophysis short, apex of lateral apophysis barely

- excised (Baehr and Baehr 1987 Figure 31). North Queensland *tropica* Baehr and Baehr
-
- III more elongate. Apical process of median apophysis elongate, apex of lateral apophysis very deeply excised, with 3 elongate spines lateral to excision (Baehr and Baehr 1987 Figure 33; Baehr and Baehr 1988 Figure 1) 22
22. Lateral border of median apophysis not modified to a spoon-like process, inner finger of lateral apophysis curved inwards (Baehr and Baehr 1987 Figure 33). Southern central Queensland *trionyx* Baehr and Baehr
- Lateral border of median apophysis modified to a spoon-like process, napped outside, inner finger of lateral apophysis curved outwards (Baehr and Baehr 1988 Figure 1). Northwestern Queensland *forresti* Baehr and Baehr
23. PLS considerably shorter than abdomen. Sharp lateral rim of median apophysis not crenulate, apical process entire (Baehr and Baehr 1987 Figures 37, 39, 41; Baehr and Baehr 1989 Figures 3, 4, 7, 8; Figures 19-22) 24
- PLS as long as or longer than abdomen. Sharp lateral rim of median apophysis crenulate, apical process divided (Baehr and Baehr 1987 Figure 43). Northwestern Australia north of Great Sandy Desert *fitzroyensis* Baehr and Baehr
24. Lateral rim of median apophysis deeply incised and doubly excavate. Lateral apophysis (lateral view) not enlarged at apex (Baehr and Baehr 1987 Figure 41; Baehr and Baehr 1989 Figures 3, 4, 7, 8; Figures 21, 22). Western Australia south of Great Sandy Desert, northeastern part of central Northern Territory 25
- Lateral rim of median apophysis simple, not doubly excavate. Lateral apophysis (lateral view) enlarged at apex (Baehr and Baehr 1987 Figures 37, 39; Figures 19, 20) 28
25. Excavate median process of median apophysis triangular and very depressed, lateral process very large. Lateral apophysis strongly contorted and sinuate, apically wide, gently bisinuate at apex (Figures 21, 22). Northern half of Northern Territory *longbottomi* sp. nov.
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- Excavate median process of median apophysis less triangular and not depressed, lateral process much smaller. Lateral apophysis barely contorted and sinuate, apically narrower, at apex excised or spined, though not bisinuate (Baehr and Baehr 1987 Figure 41; Baehr and Baehr 1989 Figures 3, 4, 7, 8). Western Australia south of Great Sandy Desert 26
26. Lateral apophysis without any excisions, but with a conspicuous spine at apex (Baehr and Baehr 1989 Figures 7, 8). Southwestern Australia *mallee* Baehr and Baehr
- Lateral apophysis with excisions at apex, without such a spine (Baehr and Baehr 1987 Figure 41; Baehr and Baehr 1989 Figures 3, 4) 27
27. Lateral apophysis with a deep median and a narrow lateral excision. Lateral rim of median apophysis rather low (Baehr and Baehr 1987 Figure 41). Mid western Australia south

- of Great Sandy Desert *occidentalis* Baehr and Baehr
- Lateral apophysis with less deep median and a conspicuously circular lateral excision. Lateral rim of median apophysis high, lamelliform (Baehr and Baehr 1989 Figures 3, 4). Southwestern Australia, southwestern New South Wales *marri* Baehr and Baehr
28. Lateral rim of median apophysis with short cleft near dorsal process. Lateral apophysis barely sinuate in middle, apex slightly enlarged. Legs shorter (Baehr and Baehr 1987 Figure 39). Southwestern Australia *perthensis* Baehr and Baehr
- Lateral rim of median apophysis without cleft near dorsal process. Lateral apophysis sinuate in middle, apex strongly enlarged. Legs more elongate (Baehr and Baehr 1987 Figure 37; Figures 19, 20) 29
29. Larger species, length >4.5 mm. Excavate process at apex of median apophysis narrower. Lateral apophysis markedly sinuate, voluminous at apex (Baehr and Baehr 1987 Figure 37). Southeastern Australia *fickerti* (L. Koch)
- Smaller species, length <4 mm. Excavate process at apex of median apophysis much wider. Lateral apophysis less sinuate, narrower at apex (Figures 19, 20). Northwestern Australia south of Great Sandy Desert *gracilis* sp. nov.
30. Dorsal muscular pits falciform, very elongate. Abdomen very elongate, laterally with pockets. Vulva with 1 circular receptaculum seminis, this basally swollen and glandular (Baehr and Baehr 1987 Figure 4). Eastern central Queensland *platycephala* Baehr and Baehr
- Dorsal muscular pits circular or elliptoid. Abdomen much shorter, laterally without conspicuous pockets 31
31. Eye area not much raised, clypeus low, at most 2/3 x as high as eye area 32
- Eye area strongly raised, clypeus as high as eye area 52
32. Intraductory ducts of vulva elongate, crossing receptacula seminis, sometimes laterally sharply bent. Ventral receptaculum seminis always distinctly glandular outside or anteriorly (Baehr and Baehr 1987 Figures 18-20, 22, 24; Baehr and Baehr 1992 Figures 7, 8; Figures 9-14) 33
- Intraductory ducts of vulva short, not crossing receptacula seminis, not bent. Vulva different, ventral receptaculum seminis not always distinctly glandular (Baehr and Baehr 1987 Figures 7, 9, 11, 13, 25, 26; Figures 5, 6, 15-18) 42
33. Epigyne laterally of vulva with two small, sclerotized pockets on each side (Figures 9, 10). Interior of southwestern Australia *piankai* sp. nov.
- Epigyne laterally of vulva without such pockets, but sometimes with a pocket near lateral border 34
34. In middle of abdomen dorsally with a distinct hump. Epigyne with a slit-like pocket near lateral border covered by a sclerotized plate. Ventral receptaculum seminis globular

- and glandular at anterior border (Figures 13, 14). Southwestern Australia
 *gibbosa* sp. nov.
- Abdomen without such hump. Epigyne without pocket. Ventral receptaculum seminis
 elongate, globular at outer surface (Baehr and Baehr 1987 Figures 18-20, 22, 24; Baehr
 and Baehr 1992 Figures 7, 8; Figures 11, 12)..... 35
35. Apparently only 1 large receptaculum seminis present each side (Baehr and Baehr 1987
 Figure 18). South Australia *reevesbyana* Baehr and Baehr
- 2 receptacula seminis present each side (Baehr and Baehr 1987 Figures 19, 20, 22, 24; Baehr
 and Baehr 1992 Figures 7, 8; Figures 11, 12) 36
36. Intraductory ducts sharply bent laterally, vulva without conspicuous v-shaped bridge in
 middle (Baehr and Baehr 1987 Figures 20, 22, 24; Baehr and Baehr 1992 Figures 7,
 8; Figures 11, 12) 37
- Intraductory ducts not sharply bent laterally, vulva with conspicuous v-shaped bridge in
 middle (Baehr and Baehr 1987 Figure 19). Eastern New South Wales
 *grayi* Baehr and Baehr
38. Vulva with intraductory ducts posteriorly sharply bent outwards and produced laterally
 (Baehr and Baehr 1987 Figure 22; Baehr and Baehr 1992 Figures 7, 8; Figures 11, 12)
 3.
- Vulva with intraductory ducts not bent outwards, nor produced laterally (Baehr and Baehr
 1987 Figures 20, 24) 41
39. AME c. as large as PME, or considerably smaller. Dorsal receptaculum seminis c. as long
 as ventral receptaculum, or longer (Baehr and Baehr 1987 Figure 22; Figures 11, 12)
 40
- AME considerably larger than PME. Dorsal receptaculum seminis half as long as ventral
 receptaculum (Baehr and Baehr 1992 Figures 7, 8). Southwestern Australia
 *distinguenda* Baehr and Baehr
40. AME considerably smaller than PME. Dorsal receptaculum seminis slightly shorter than
 ventral receptaculum, apical part of dorsal receptaculum less well divided (Baehr and
 Baehr 1987 Figure 22). Southeastern Queensland, eastern New South Wales
 *queenslandica* Baehr and Baehr
- AME c. as large as PME. Dorsal receptaculum seminis longer than ventral receptaculum,
 apical part of dorsal receptaculum well divided, globose (Figures 11, 12). Central
 Northern Territory *harveyi* sp. nov.
41. PLS longer than abdomen. Dorsal receptaculum seminis much smaller than ventral
 receptaculum (Baehr and Baehr 1987 Figure 20). Southwestern Australia
 *darlingtoniana* Baehr and Baehr
- PLS shorter than abdomen. Dorsal receptaculum seminis about as large as ventral receptaculum

(Baehr and Baehr 1987 Figure 24). Southeastern Australia. *raveni* Baehr and Baehr

42. Small species, length <3 mm. PLS extremely short, c. half as long as abdomen. Abdomen dorsally with a conspicuous hump in middle. Vulva with 2 receptacula seminis and a large glandular sac situated ventrally (Baehr and Baehr 1987 Figure 7). Eastern Australia *brachycauda* Baehr and Baehr

Usually larger species with longer PLS. Abdomen without such hump. Vulva different ...
..... 43

43. PLS and legs very elongate, PLS longer than abdomen. Vulva widely separated, with 3 not very distinct receptacula seminis, the larger two apically or subapically glandular (Baehr and Baehr 1987 Figure 9). Eastern Queensland, northeastern New South Wales *tweedensis* Baehr and Baehr

PLS and legs shorter, PLS not longer than abdomen. Vulva different, at most one receptaculum seminis glandular 44

44. AME considerably larger than PME. Epigyne with tube-like pocket at some distance from lateral border. Vulva with 2 receptacula seminis, dorsal receptaculum elongate and strongly coiled (Baehr and Baehr 1987 Figure 15). Northeastern Queensland *daviesi* Baehr and Baehr

AME slightly or considerably smaller than PME. Epigyne with or without pocket. Dorsal receptaculum seminis not as elongate and coiled (Baehr and Baehr 1987 Figures 7, 9, 11, 13, 15, 25, 26; Figures 5, 6, 15-18) 45

45. Vulva with 2 receptacula seminis, dorsal receptaculum clearly visible, ventral receptaculum irregularly shaped, elongate, somewhat sinuose, or globular with an additional ventral sac (Baehr and Baehr 1987 Figures 11, 13, 25; Figures 5, 6) 46

Vulva different, ventral receptaculum seminis rather short (Baehr and Baehr 1987 Figures 7, 9, 15, 26; Figures 15-18) 50

47. PLS and legs elongate, PLS longer than abdomen. Epigyne with tube-like pocket at some distance from lateral border. Ventral receptaculum seminis short, globose, ventrally with a small, circular glandular sac (Baehr and Baehr 1987 Figure 25). Southeastern Queensland *cooloolensis* Baehr and Baehr

PLS and legs usually shorter, PLS rarely longer than abdomen. Epigyne without or with pocket. Ventral receptaculum seminis elongate, somewhat sinuate, without additional small, circular sac. Epigyne posteriorly with sclerotized bar (Baehr and Baehr 1987 Figures 11, 13; fig 5, 6) 48

48. PLS considerably shorter than abdomen. Receptacula seminis shorter, approximated (Baehr and Baehr 1987 Figure 11; Figures 5, 6) 49

PLS as long as or longer than abdomen. Epigyne with pocket halfway laterally. Receptacula seminis widely separated (Baehr and Baehr 1987 Figure 13). Eastern Queensland and New South Wales *brisbanensis* Baehr and Baehr

49. Epigyne laterally without pocket. Dorsal receptaculum seminis apically less separated, shorter than ventral receptaculum, the latter glandular along whole outer surface (Baehr and Baehr 1987 Figure 11). Southeastern Australia *eucalypti* (Rainbow)

Epigyne laterally with pocket. Dorsal receptaculum seminis apically well separated, globular, slightly longer than ventral receptaculum, the latter glandular only in middle (Figures 5, 6). Riverina country, southern inland New South Wales *riverinae* sp. nov.
50. Epigye laterally without a slit-shaped pocket, vulva laterally with a membranous area (Figures 15, 16). Southwestern Australia *mainae* sp. nov.

Epigyne laterally with a slit-like pocket, vulva without such membranous area (Baehr and Baehr 1987 Figure 26; Figures 17, 18). New South Wales 51
51. Epigyne with large plate bearing conspicuous ridges medially of pocket (Figures 17, 18). Riverina country, southern inland New South Wales *triangularis* sp. nov.

Epigyne without such plate (Baehr and Baehr 1987 Figure 26). Eastern New South Wales *brevipes* Baehr and Baehr
52. Very small species, length <3 mm. Eye area moderately raised, sides near top oblique. Vulva with 2 elongate receptacula seminis and a mushroom-shaped, glandular basal sac. Epigyne with funnel-shaped pocket medially (Baehr and Baehr 1987 Figure 28). Northernmost Northern Territory, northern tip of Queensland *arnhemensis* Baehr and Baehr

Larger species, length >3.5 mm. Eye area strongly raised, sides not oblique near top. Vulva different, without a mushroom-shaped sac. Pocket of epigyne situated more laterally (Baehr and Baehr 1987 Figures 30, 32, 34-36, 38, 40, 42, 44; Baehr and Baehr 1988 Figures 2, 3; Baehr and Baehr 1989 Figures 5, 6; Figures 23, 24) 53
53. Sides of eye area concave. Epigyne with a tubular pocket at some distance from lateral border. Receptacula seminis very elongate, strongly and irregularly coiled (Baehr and Baehr 1987 Figure 30). Southwestern Australia, western Victoria *circumvidens* Baehr and Baehr

Sides of eye area straight. Pocket of epigyne variable. Receptacula seminis not very elongate, nor coiled (Baehr and Baehr 1987 Figures 32, 34-36, 38, 40, 42, 44; Baehr and Baehr 1988 Figures 2, 3; Baehr and Baehr 1989 Figures 5, 6) 54
54. Apical section of inner receptaculum seminis conspicuously circular, with narrow duct (Baehr and Baehr 1987 Figures 34-36; Baehr and Baehr 1988 Figures 2, 3; Baehr and Baehr 1989 Figures 5, 6; Figures 23, 24) 55

Apical section of inner receptaculum seminis not conspicuously circular, not separated by a narrow duct (Baehr and Baehr 1987 Figures 32, 38, 40, 42, 44) 60
55. Vulva very wide and with a broad, sclerotized bridge. Lateral receptaculum seminis nearly as long as median receptaculum (Baehr and Baehr 1987 Figure 34; Baehr and Baehr 1988 Figure 3; Baehr and Baehr 1989 Figures 5, 6) 56

- Vulva narrower, with a narrow sclerotized bridge. Lateral receptaculum seminis considerably smaller than median receptaculum (Baehr and Baehr 1987 Figures 35, 36; Baehr and Baehr 1988 Figure 2; Figures 23, 24) 58
56. Intraductory duct basally not coiled. Bridge of epigyne located rather posteriorly between receptacula seminis (Baehr and Baehr 1987 Figure 34). Southwestern Australia
..... *pseudocircumvidens* Baehr and Baehr
- Intraductory duct basally strongly coiled (Baehr and Baehr 1988 Figure 3; Baehr and Baehr 1989 Figures 5, 6). Bridge of epigyne located rather anteriorly or in middle 57
57. Bridge of epigyne located anteriorly at apex of receptacula seminis (Baehr and Baehr 1988 Figure 3). Eastern central South Australia *ediacarae* Baehr and Baehr
- Bridge of epigyne located more posteriorly between receptacula seminis (Baehr and Baehr 1989 Figures 5, 6). Southwestern Australia, southwestern New South Wales
..... *marri* Baehr and Baehr
58. Epigyne with elongate oval scapus (Figure 23). Northern half of Northern Territory
..... *longbottomi* sp.nov.
- Epigyne without such scapus 59
59. Smaller species with wider body, length <4.5 mm. Legs and PLS rather stout. Lateral receptaculum seminis directed horizontally or posteriorly. Bridge of vulva not a narrow clasp (Baehr and Baehr 1987 Figure 35; Baehr and Baehr 1988 Figure 2) 60
- Large, elongate species, length c. 5.5 mm. Legs and PLS elongate. Lateral receptaculum seminis larger, not directed horizontally. Bridge of vulva with approximated clasp-like process (Baehr and Baehr 1987 Figure 36). Southwestern Australia
..... *rossi* Baehr and Baehr
60. Lateral receptaculum seminis very small, directed horizontally. Intraductory duct not strongly v-shaped (Baehr and Baehr 1987 Figure 35). Northwestern Queensland, northwestern Australia *leichardtiana* Baehr and Baehr
- Lateral receptaculum seminis large, elongate, directed posteriorly, apex conspicuously incurved. Intraductory duct strongly v-shaped (Baehr and Baehr 1988 Figure 2). Northwestern Queensland *forresti* Baehr and Baehr
61. Medium sized species, length <4 mm (Baehr and Baehr 1987 Figure 32). Northern Queensland, northeastern Northern Territory *tropica* Baehr and Baehr
- Large species, length >5 mm 62
62. Vulva with entire, sclerotized bridge at posterior border. Ventral receptaculum seminis much more elongate than dorsal receptaculum. Pocket of epigyne consisting of two slits somewhat removed from lateral border (Baehr and Baehr 1987 Figure 44). Northwestern Australia north of Great Sandy Desert *fitzroyensis* Baehr and Baehr
- Vulva without entire, sclerotized bridge at posterior border. ventral receptaculum seminis

- just slightly larger than dorsal receptaculum. Pocket of epigyne consisting of 1 slit only (Baehr and Baehr 1987 Figures 38, 40, 42) 63
63. Intraductory ducts crossing base of receptacula seminis, vulva with conspicuous triangular scapus in middle. Pocket of epigyne situated immediately at lateral border (Baehr and Baehr 1987 Figures 38, 40) 64
- Intraductory ducts not crossing base of receptacula seminis, vulva without triangular scapus in middle. Pocket of epigyne far removed from lateral border (Baehr and Baehr 1987 Figure 42). Northwestern Australia south of Great Sandy Desert *occidentalis* Baehr and Baehr
64. Intraductory ducts strongly swollen around base of receptacula seminis, produced dorsomedially. Scapus separated laterally at base from anterior area (Baehr and Baehr 1987 Figure 38). Southeastern Australia *fickerti* (L. Koch)
- Intraductory ducts not swollen around base of receptacula seminis, not produced dorsomedially. Scapus not separated at base (Baehr and Baehr 1987 Figure 40). Southwestern Australia *perthensis* Baehr and Baehr

platycephala-group

Tamopsis amplithorax Baehr and Baehr, 1987

Tamopsis amplithorax Baehr and Baehr, 1987: 360.

New record: WA: 1 male, Grasspatch 33.14S, 121.43E, Fitz. Loc. 41, 18 June 1989, A. F. Longbottom S.286 (WAM 92/125).

This species been described from a single male from the Stirling Range in southwestern Western Australia. The species is distinguished from all other species of the *platycephala*-group by the relatively large cephalothorax and the large and apically wide, rather evenly curved, hook-shaped median apophysis and basally much wider lateral apophysis of male palpus. The male palpus is also considerably larger than in the other species, even in equally sized specimens. The new record enlarges the distribution of *T. amplithorax* somewhat to the east. The specimen was caught "on rusty pipe ladder at house".

Tamopsis depressa Baehr and Baehr, 1992

Figure 25

Tamopsis depressa Baehr and Baehr 1992: 62.

New record: NT: 1 male, Daly Waters, K. F. Adams, 6.VIII.1971 (WAM 92/137).

The male palpus of this species is much more similar to that of eastern *T. platycephala* Baehr and Baehr than to the palpus of western *T. amplithorax*. The species was hitherto known from central western Western Australia only. The new record enlarges the known range considerably to the northern part of central Northern Territory. All records are so far from arid areas in the west

and the interior. Hence, this is perhaps a widespread deserticolous species, but its exact range is still unknown.

eucalypti-group

Tamopsis riverinae sp. nov.

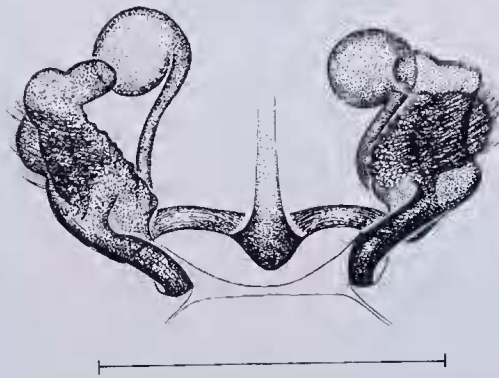
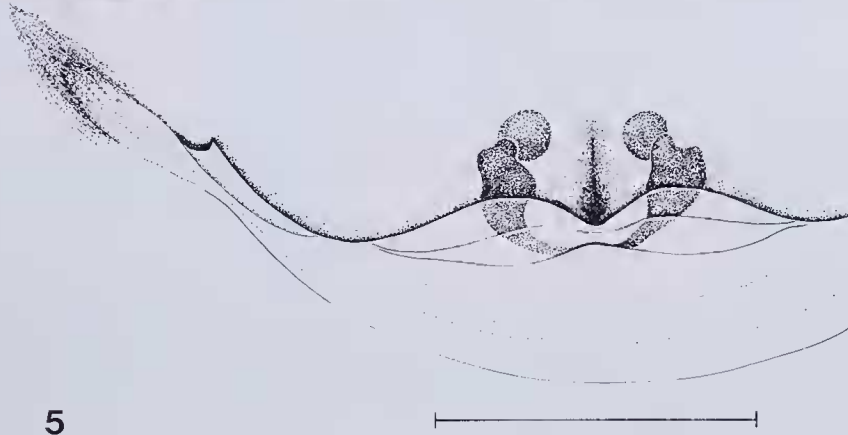
Figures 5, 6, 25

Holotype

Female, NSW, Yanco Ck., 11 km SW. of Morundah 35.02S, 146.13E, 29 Dec. 1990, A. F. Longbottom S.654 (P46/4), River gums, "sandside" 50 km SW. of Narrandera (WAM 92/139).

Diagnosis

Species of *eucalypti*-group due to small AME and very similar female epigyne and vulva. Distinguished from *T. eucalypti* (Rainbow) by presence of a lateral pocket in epigyne, longer and more knob-like dorsal receptaculum seminis, and better separated glandular part of ventral receptaculum seminis; from *T. brisbanensis* Baehr and Baehr by shorter PLS, longer and more knob-like receptacula seminis, and much shorter glandular part of ventral receptaculum seminis.



Figures 5 and 6 *Tamopsis riverinae* sp. nov. Female. 5. Epigyne. Scale: 0.5 mm. 6. Vulva. Scale: 0.25 mm.

Description

FEMALE HOLOTYPE

Measurements

Length: 6.5 mm; cephalothorax length: 2.3 mm; width: 2.25 mm; abdomen length: 4.2 mm; width: 3.75 mm. Legs: I: 15.05 mm, II: 14.9 mm, III: 5.45 mm, IV: 14.15 mm; ratio: 1:0.99:0.36:0.94. Ratio LB/LL: 0.43. PLS length: 2.85 mm; bS: 0.65 mm; tS: 2.2 mm. Length ratio PLS/abdomen: 0.68. Eye ratio: 1:0.7:1.32:1.43.

Colour

Cephalothorax yellow, lateral border and some radial stripes narrowly dark. Eye area anteriorly black, posteriorly of eyes with a whitish median stripe. Clypeus whitish. Abdomen whitish, slightly mottled, a lancet-shaped median stripe, the lateral border, and some transverse cross bars in posterior third piceous. Femora and PLS inconspicuously annulate. Ventral surface light.

Cephalothorax

About circular, much narrower than abdomen. Eye area rather depressed, clypeus about half as high as eye area. PLE largest, PME considerably larger than AME, ALE rather large. Distance AME/AME slightly < diameter of AME, distance AME/ALE > diameter of AME, distance PME/PME c. 1/3 of diameter of PME, distance PME/PLE c. as long as diameter of PME. Chelicerae < 2 x as long as wide. Sternum pentagonal, sparsely hirsute.

Abdomen

Slightly longer than wide, much wider than cephalothorax, markedly trapezoid, posteriorly widest. Dorsal surface with 5 pairs of circular or slightly ellipsoid muscular pits, 3rd pit remarkably large. Ventral muscular pits in a wide, v-shaped arrangement. PLS considerably shorter than abdomen, tS comparatively short.

Legs

Measurements see above. Short compared with body size. III comparatively long.

Epigyne

Rather simple, though with a posteriorly slightly sclerotized pocket halfway along each side.

Vulva

With two receptacula seminis, the dorsal one elongate and with a very distinct knob-like apical part. Glandulose part of ventral receptaculum fairly separated. Posteriorly with a complete transverse bar between either side.

Male

Unknown.

Variation

Unknown.

Etymology

Alludes to the occurrence in the Riverina country of New South Wales.

Distribution

Riverina country, southern New South Wales. Known only from type locality.

Habits

Little known. Holotype caught on "river gum" in December.

Relationships

This species belongs to the *eucalypti*-group of our revision (Baehr and Baehr 1987) and is certainly closely related to *T. eucalypti* (Rainbow). It is perhaps the western vicariant of the strictly eastern and southeastern *T. eucalypti*.

queenslandica-group

Tamopsis distinguenda Baehr and Baehr, 1992

Tamopsis distinguenda Baehr and Baehr, 1992: 66.

New records: WA: 1 male, Ludlow Tuart Forest 33.36S, 115.29E, 16 December 1980, S. J. Curry, Day Trap NO.1 (WAM 92/143, CBM); 1 male, Mt. Cooke 32.25S, 116.18E, 26 Dec. 1990, J. M. Waldock (WAM 91/94).

This species is closely related to the eastern *T. queenslandica* Baehr and Baehr and is perhaps its western vicariant. One of the specimens mentioned above is from the same locality where some specimens of the type series came from, and it has been collected from "open canopy, tuart forest, big clearing, mill paddock 13.I.Ar."

Tamopsis darlingtoniana Baehr and Baehr, 1987

Tamopsis darlingtoniana Baehr and Baehr, 1987: 371.

New record: WA: 1 female, Murdoch 32°04'18"S, 115°49'26"E, D. Mead-Hunter (III), 12 Dec. 1989 (WAM 92/133).

This species was described from a single female found near Perth in southwestern Australia. The new record is very close to the type locality.

Tamopsis facialis sp. nov.

Figures 7, 8, 25

Holotype

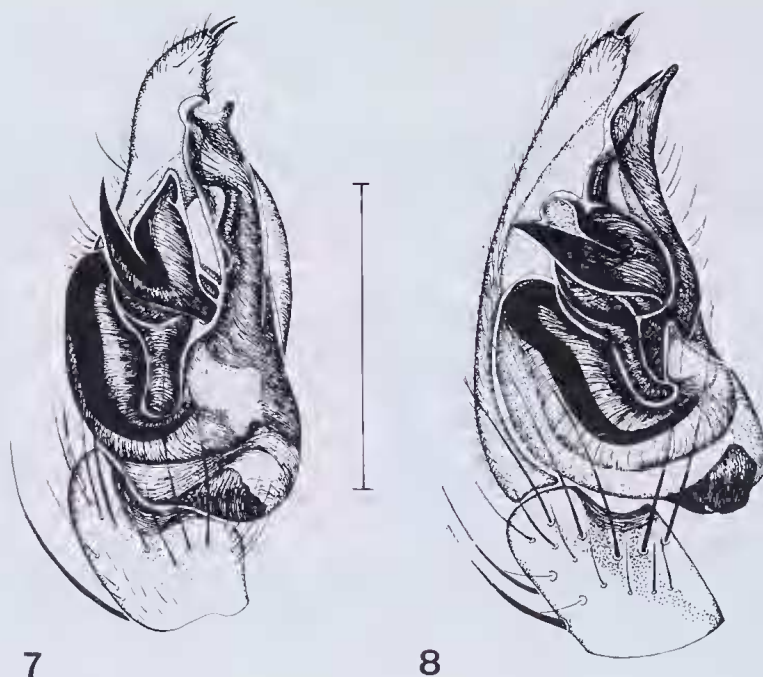
Male, W. A.: Callawa Stn. 20.33S, 120.40E, 4 Aug. 1989, A. E. de Jong (WAM 92/120).

Paratype

1 male, Grasspatch 33.14S, 121.43E, Fitz. Loc. 41, Western Australia, 8 Dec. 1991, A. F. Longbottom (WAM 92/126).

Diagnosis

Species of *queenslandica*-group, closely related to *T. centralis* Baehr and Baehr. Distinguished from that species by conspicuous, face-like pattern of eye area and deeply excised apex of lateral apophysis of male palpus.



Figures 7 and 8 *Tamopsis facialis* sp. nov. Male palpus. 7. Ventral view. 8. Lateral view. Scale: 0.5 mm.

Description

MALE HOLOTYPE

Measurements

Length: 3.3 mm; cephalothorax length: 1.55 mm; width: 1.45 mm; abdomen length: 1.75 mm; width: 1.48 mm. Legs: I: 8.75 mm, II: 9.1 mm, III: 3.7 mm, IV: 8.5 mm; ratio: 1:1.04:0.42:0.97. Ratio LB/LL: 0.36. PLS length: 1.48 mm; bS: 0.4 mm; tS: 1.08 mm. Length ratio PLS/abdomen: 0.85. Eye ratio: 1:0.42:0.85:0.97.

Colour

Cephalothorax dark yellow to light piceous, eye area and lateral borders narrowly black, some radial spots near lateral and posterior borders light yellow. Posterior part of eye area reddish, in middle with a whitish stripe. Anterior border of head apart from middle narrowly black, clypeus in middle with narrow black stripe, laterally below eyes with dark spot, and space between AME and ALE conspicuously yellow, much looking like another "eye". Abdomen whitish, very strongly mottled, a wide, lancet-shaped median stripe, the narrow lateral borders, and some transverse cross bars in posterior third dark piceous, colour of abdomen prevailing dark. Base in middle with a whitish spot on either side. Basal segment of palpi with a conspicuous black stripe on either side. Legs and PLS very inconspicuously annulate. Ventral surface light.

Cephalothorax

Almost circular, almost as wide as abdomen, fairly convex. Eye area rather depressed, clypeus about half as high as eye area. AME largest, PLE larger than PME, ALE moderately large.

Distance AME/AME c. $\frac{2}{3}$ of diameter of AME, distance AME/ALE slightly < diameter of AME, distance PME/PME $>\frac{1}{2}$ of diameter of PME, distance PME/PLE slightly < diameter of PME. Chelicerae $<2 \times$ as long as wide. Sternum pentagonal, sparsely hirsute.

Abdomen

Distinctly longer than wide, barely wider than cephalothorax, elliptoid, widest in middle. Dorsal surface with 5 pairs of rather circular to fairly elliptoid muscular pits, 1st and especially 3rd pits very large and deeply sunken in. Ventral muscular pits in a wide, v-shaped arrangement. PLS considerably shorter than abdomen, tS comparatively short.

Legs

Measurements see above. Rather short compared with body size. III comparatively elongate.

Palpus

Median apophysis contorted, deeply excised at apex, inner part of excision slender, outer part convex, laterally with sharp edge. Lateral apophysis also contorted, elongate, apex distinctly excised, base laterally with a lamella.

MALE PARATYPE

Measurements

Length: 3.95 mm; cephalothorax length: 1.7 mm; width: 1.65 mm; abdomen length: 2.25 mm; width: 1.9 mm. Legs: I: 10.5 mm, II: 11.7 mm, III: 4.4 mm, IV: 10.35 mm; ratio: 1:1.11:0.41:0.98. Ratio LB/LL: 0.34. PLS length: 1.82 mm; bS: 0.4 mm; tS: 1.42 mm. Length ratio PLS/abdomen: 0.81. Eye ratio: 1:0.42:0.85:0.95.

Female

Unknown.

Variation

Because the paratype was in the process of moulting, colour and pattern are less distinctive than in holotype. Otherwise, little variation noted.

Etymology

Alludes to the conspicuous face-like pattern of anterior part of head.

Distribution

Southwestern part of Western Australia and southern border of Great Sandy Desert. Actually known only from two localities.

Habits

Largely unknown. Paratype collected "on diesel fuel tank". So far collected in August and December.

Relationships

This species is certainly most closely related to *T. centralis* Baehr and Baehr from central Queensland and shows only minor differences in structure of male palpus and perhaps in colour and pattern of eye area and clypeus.

Tamopsis piankai sp. nov.

Figures 9, 10, 25

Holotype

Female, WA, 39 km E. of Laverton 28.28S, 122.50E, 5-6 Oct. 1990, E. R. Panka (WAM 92/128).

Diagnosis

Large, short-legged species of *queenslandica*-group due to structure of female vulva. Distinguished from all other species of this group by presence of two small sclerotized pockets on either side of epigyne just laterally of vulva.

Description

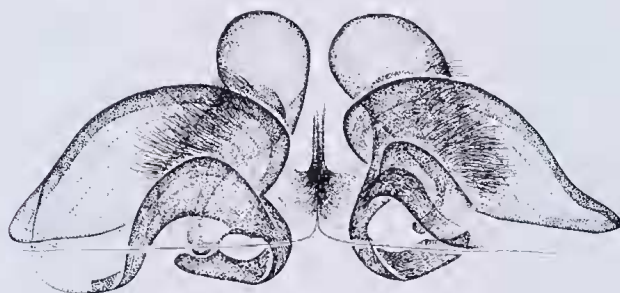
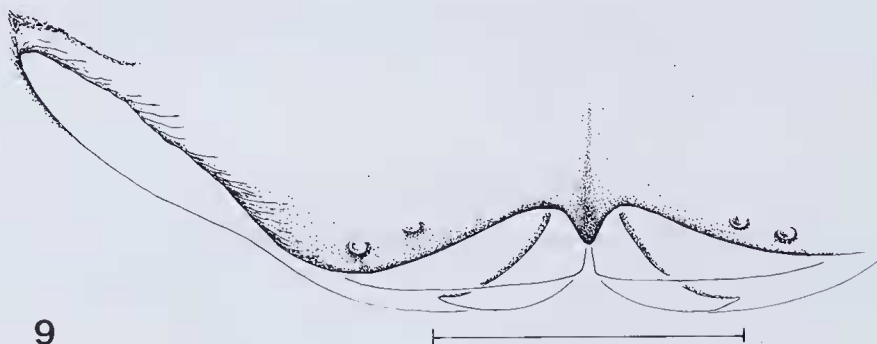
FEMALE HOLOTYPE

Measurements

Length: 5.45 mm; cephalothorax length: 2.10 mm; width: 2.05 mm; abdomen length: 3.35 mm; width: 3.05 mm. Legs: I: 12.05 mm, II: 12.2 mm, III: 4.55 mm, IV: 11.1 mm; ratio: 1:1.01:0.38:0.92. Ratio LB/LL: 0.45. PLS length: 2.7 mm; bS: 0.6 mm; tS: 2.1 mm. Length ratio PLS/abdomen: 0.81. Eye ratio: 1:0.45:0.97:0.96.

Colour

Cephalothorax dark yellow, eye area, lateral border, and a rather ill delimited sublateral band



Figures 9 and 10 *Tamopsis piankai* sp. nov. Female. 9. Epigyne. Scale: 0.5 mm. 10. Vulva. Scale: 0.25 mm.

black, some radial spots near lateral and posterior borders light yellow, area posteriorly of eyes light. Clypeus black, though area ventrolaterally of eyes and lateral part of clypeus with an indistinct light spot each. Chelicerae almost black, palpi with conspicuous black spots on all segments. Abdomen whitish, though very strongly mottled, a wide, lancet-shaped median stripe, the wide lateral borders, and some transverse cross bars in posterior third black, colour of abdomen prevailing dark. Legs barely annulate, though inner and outer surfaces conspicuously striped with black. PLS with two dark rings. Ventral surface light.

Cephalothorax

Almost circular, much narrower than abdomen, fairly convex. Eye area rather depressed, clypeus about half as high as eye area. AME largest, PME as large as PLE, ALE rather large. Distance AME/AME < half of diameter of AME, distance AME/ALE > half of diameter of AME, distance PME/PME c. 1/3 of diameter of PME, distance PME/PLE slightly < diameter of PME. Chelicerae < 2 x as long as wide. Sternum pentagonal, sparsely hirsute.

Abdomen

Slightly longer than wide, much wider than cephalothorax, markedly trapezoid, posteriorly widest. Dorsal surface with 5 pairs of rather circular to slightly elliptoid muscular pits, 1st and 3rd pits large and deeply sunken in. Ventral muscular pits in a wide, v-shaped arrangement. PLS considerably shorter than abdomen, ts comparatively short.

Legs

Measurements see above. Very short, III comparatively elongate.

Epigyne

Without lateral pockets, though with two small, sclerotized pockets rather close to vulva.

Vulva

Compact, parts closely adjacent, medially with a narrow, transverse bar. Apparently 1 receptaculum seminis only which has the apical part globular and the basal part extensively glandulose. Intraductory ducts crossing receptaculum seminis, ventro-medially bent inwards, laterally markedly bent and with a short duct directed ventro-laterally.

Male

Unknown.

Variation

Unknown.

Etymology

Named in honour of the collector.

Distribution

Interior of southwestern Australia. Known only from type locality.

Habits

Unknown. Collected in October in "pitfall traps".

Relationships

With regard to structure of female vulva this species is certainly very closely related to *T.*

queenslandica Baehr and Baehr, *T. distinguenda* Baehr and Baehr, and perhaps also *T. reevesbyana* Baehr and Baehr, although it differs from all species by the structure of female epigyne and by the more complexly built intraductory ducts.

***Tamopsis harveyi* sp. nov.**

Figures 11, 12, 26

Holotype

Female, NT: Specimen Hill, Harts Range, Zircon field site 1, 15 May 1991, A. F. Longbottom S.664 (WAM 92/138).

Diagnosis

Large, short-legged species of *queenslandica*-group due to structure of female vulva. Distinguished from other species of this group by absence of a lateral pocket in epigyne, elongate vulva with clearly separated dorsal receptaculum seminis much surpassing ventral receptaculum, intraductory ducts laterally sharply bent, posteriorly bent laterally, and crossing receptaculum.

Description

FEMALE HOLOTYPE

Measurements

Length: 5.75 mm; cephalothorax length: 2.1 mm; width: 2.05 mm; abdomen length: 3.65 mm; width: 3.1 mm. Legs: I: 11.85 mm, II: 11.9 mm, III: 4.75 mm, IV: 11.2 mm; ratio: 1:1:0.4:0.95. Ratio LB/LL: 0.48. PLS length: 2.9 mm; bS: 0.6 mm; tS: 2.3 mm. Length ratio PLS/abdomen: 0.79. Eye ratio: 1:0.41:1:1.04.

Colour

Cephalothorax including eye area piceous, in middle greyish, some radial spots near lateral and posterior borders light yellow, posteriorly of eyes with a light yellow median stripe. Clypeus and chelicerae almost black. Abdomen whitish, rather mottled, a wide, lancet-shaped median stripe, the wide lateral borders, and some transverse cross bars in posterior third black, colour of abdomen prevailing light. Legs, palpi, and PLS conspicuously annulate. Ventral surface light.

Cephalothorax

Almost circular, much narrower than abdomen, fairly convex. Eye area moderately depressed, clypeus slightly $> 1/2$ as high as eye area. PLE largest, though but feebly larger than AME and PME, ALE rather large. Distance AME/AME $<$ half of diameter of AME, distance AME/ALE c. $2/3$ of diameter of AME, distance PME/PME c. $1/3$ of diameter of PME, distance PME/PLE slightly $<$ diameter of PME. Chelicerae $< 2 \times$ as long as wide. Sternum pentagonal, sparsely hirsute.

Abdomen

Slightly longer than wide, much wider than cephalothorax, markedly trapezoid, posteriorly widest. Dorsal surface with 5 pairs of rather circular muscular pits, 3rd pit not unusually large, moderately sunken in. Ventral muscular pits in a wide, v-shaped arrangement. PLS considerably shorter than abdomen, tS comparatively short.

Legs

Measurements see above. Very short, III comparatively elongate.

Epigyne

Without lateral pocket or other peculiarities.

Vulva

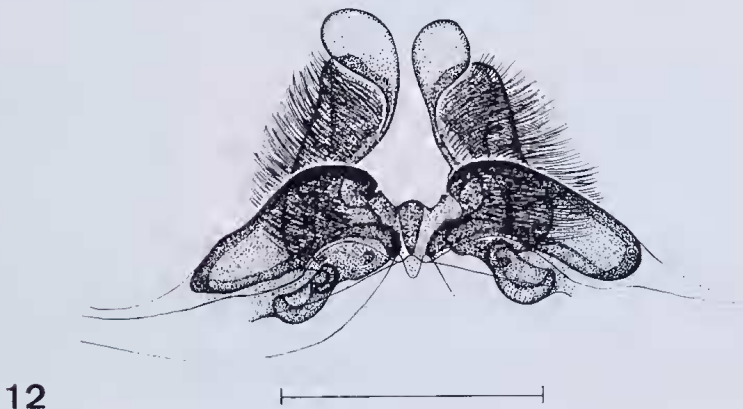
Rather elongate, parts close adjacent, medially with a narrow, transverse bar. With two receptacula seminis, the dorsal receptaculum apically circular and much surpassing the ventral receptaculum which is laterally extensively glandulose. Intraductory ducts crossing receptaculum seminis, laterally markedly bent, with a short duct directed ventro-laterally but rather curved laterally.

Male

Unknown.

Variation

Unknown.



Figures 11 and 12 *Tamopsis harveyi* sp. nov. Female. 11. Epigyne. Scale: 0.5 mm. 12. Vulva. Scale: 0.25 mm.

Etymology

Named in honour of Mark Harvey who kindly sent this highly interesting sample of specimens.

Distribution

Central Northern Territory. Known only from type locality.

Habits

Holotype collected in May "on dead twig in tree".

Relationships

With regard to structure of female vulva this species is most similar to *T. raveni* Baehr and Baehr of southeastern Queensland. However, as the *queenslandica*-group comprises several closely related species, *T. harveyi* might be also related to some other species.

Tamopsis gibbosa sp. nov.

Figures 13, 14, 26

Holotype

Female, WA, Durokoppin Nature Reserve 31.30S, 117.44.E, 3 Nov. 1988, D. Mitchell et al., DKR beat G (WAM 92/122).

Diagnosis

Species alluded to *queenslandica*-group by virtue of the sclerotized transverse bar and the strongly bent intraductory ducts in female epigyne. Within this group distinguished at first glance by the hump in middle of dorsal surface of abdomen, further by the lateral pocket of epigyne that is concealed by a large sclerotized plate, and by the large, roundish ventral receptaculum seminis which completely conceals the smaller dorsal receptaculum and bears a large, conspicuous, glandulose part in antero-medio-ventral position.

Description

FEMALE HOLOTYPE

Measurements

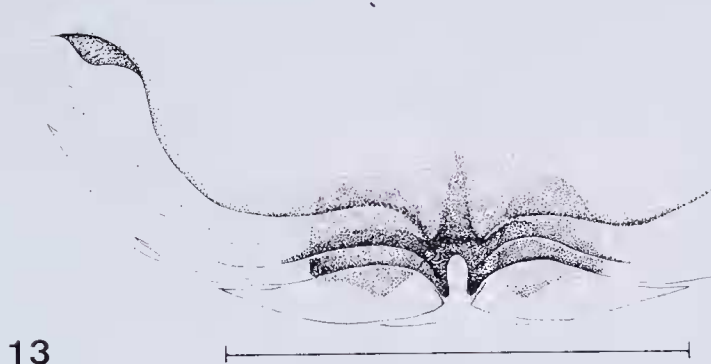
Length: 4.3 mm; cephalothorax length: 1.6 mm; width: 1.5 mm; abdomen length: 2.7 mm; width: 2.3 mm. Legs: I: 8.8 mm, II: 9.35 mm, III: 3.35 mm, IV: 8.1 mm; ratio: 1:0.95:0.38:0.92. Ratio LB/LL: 0.49. PLS length: 2.1 mm; bS: 0.45 mm; tS: 1.65 mm. Length ratio PLS/abdomen: 0.78. Eye ratio: 1:0.55:1.15:1.25.

Colour

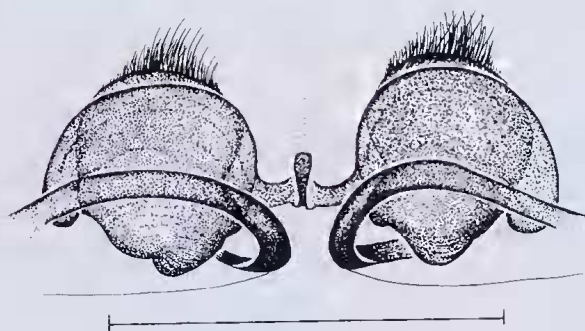
Cephalothorax piceous, eye area inclusive clypeus black, some radial spots near lateral and posterior borders light yellow, posteriorly of eyes with a whitish median stripe. Abdomen whitish, though strongly mottled, a wide, lancet-shaped median stripe, the wide lateral borders, and some transverse cross bars in middle and posterior third dark piceous, colour of abdomen prevailing dark. Legs, palpi, and PLS conspicuously annulate. Ventral surface light.

Cephalothorax

Almost circular, much narrower than abdomen, fairly convex. Eye area rather depressed,



13



14

Figures 13 and 14 *Tamopsis gibbosa* sp. nov. Female. 13. Epigyne. Scale: 0.5 mm. 14. Vulva. Scale: 0.25 mm.

clypeus c. half as high as eye area. PLE largest, PME larger than AME, ALE rather large. Distance AME/AME c. $\frac{2}{3}$ of diameter of AME, distance AME/ALE c. diameter of AME, distance PME/PME c. $\frac{1}{2}$ of diameter of PME, distance PME/PLE c. as long as diameter of PME. Chelicerae $< 2 \times$ as long as wide. Sternum pentagonal, sparsely hirsute.

Abdomen

Slightly longer than wide, much wider than cephalothorax, markedly trapezoid, posteriorly widest. In middle of dorsal surface with a fairly acute hump. Dorsal surface with 5 pairs of rather circular muscular pits, 1st and 3rd pits large and deeply sunken in. Ventral muscular pits in a wide, v-shaped arrangement. PLS considerably shorter than abdomen, tS comparatively short.

Legs

Measurements see above. Very short compared with body size. III comparatively elongate.

Epigyne

With a slit-like pocket near lateral border covered by a large, sclerotized plate.

Vulva

Small, compact, parts closely adjacent, medially with a narrow, transverse bar, with 2

receptaculi seminis, the ventral receptaculum conspicuously globular and glandulose in antero-ventral position and covering completely the dorsal receptaculum. Intraductory ducts crossing receptaculum seminis and medially bent sharply inwards.

Male

Unknown.

Variation

Unknown.

Etymology

Alludes to the medially humped dorsal surface of abdomen.

Distribution

Southwestern Australia. Known only from type locality.

Habits

Unknown. Holotype caught in November, according to label perhaps collected by beating.

Relationships

The relationships of this species are somewhat obscure, because the male is still unknown. Hence even the association with the *queenslandica*-group is slightly doubtful. Due to the extremely short legs, the large plate covering the lateral pocket in the female epigyne, and some characters of the female vulva, however, this species could be related to the eastern *T. brevipes* Baehr and Baehr and to the two following species.

***Tamopsis mainae* sp. nov.**

Figures 15, 16, 26

Holotype

Female, Moorine Rock, WA, 21.I.1978, R. P. McMillan (WAM 92/130).

Diagnosis

Species of the *queenslandica*-group, rather remotely related to *T. brevipes* Baehr and Baehr and *T. piankai* sp. nov. (see below) due to the somewhat similar female vulva. Distinguished from both species, however, by absence of a conspicuous lateral pocket in the female epigyne.

Description

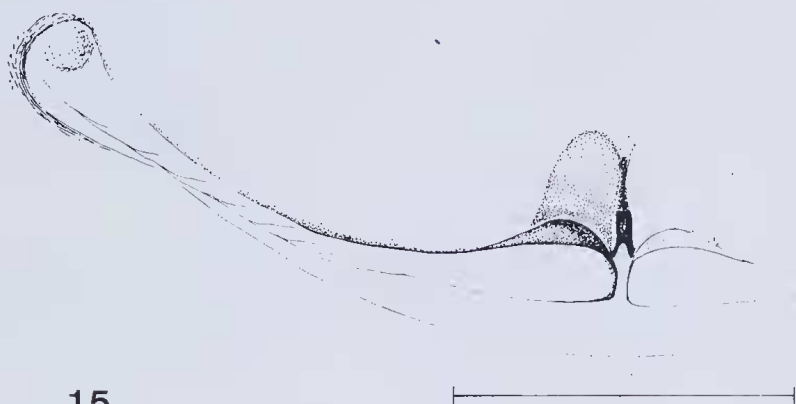
FEMALE HOLOTYPE

Measurements

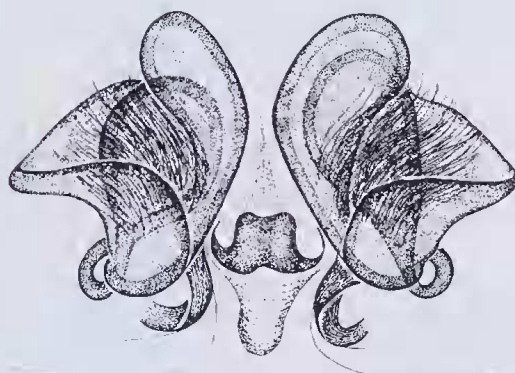
Length: 5.35 mm; cephalothorax length: 1.95 mm; width: 1.9 mm; abdomen length: 3.4 mm; width: 3.1 mm. Legs: I: 11.1 mm, II: 10.95 mm, III: 4.5 mm, IV: 9.8 mm; ratio: 1:0.99:0.41:0.89. Ratio LB/LL: 0.48. PLS length: c. 2.5 mm, tip broken; bS: 0.55 mm; tS: c. 1.95 mm. Length ratio PLS/abdomen: c. 0.74. Eye ratio: 1:0.43:1.18:1.33.

Colour

Cephalothorax dark yellow to light piceous, eye area and lateral border black, some radial spots



15



16

Figures 15 and 16 *Tamopsis mainae* sp. nov. Female. 15. Epigyne. Scale: 0.5 mm. 16. Vulva. Scale: 0.25 mm.

near lateral and posterior borders light yellow, posteriorly of eyes with a whitish median stripe. Clypeus light yellow, a narrow median stripe dark. Chelicerae at base light, then darkened. Abdomen whitish, though rather strongly mottled, a wide, serrate, lancet-shaped median stripe, the wide lateral borders, and some transverse cross bars in posterior third dark piceous, colour of abdomen prevailing light. Legs, palpi, and PLS fairly conspicuously annulate. Ventral surface light.

Cephalothorax

Almost circular, much narrower than abdomen, fairly convex. Eye area rather depressed, clypeus c. half as high as eye area. PLE largest, PME much larger than AME, ALE fairly large. Distance AME/AME c. $\frac{2}{3}$ of diameter of AME, distance AME/ALE c. diameter of AME, distance PME/PME $< \frac{1}{2}$ of diameter of PME, distance PME/PLE c. as long as diameter of PME. Chelicerae $< 2 \times$ as long as wide. Sternum pentagonal, sparsely hirsute.

Abdomen

Slightly longer than wide, much wider than cephalothorax, markedly trapezoid, posteriorly widest. Dorsal surface with 5 pairs of rather circular to slightly elliptoid muscular pits, 1st and

3rd pits large. Ventral muscular pits in a wide, v-shaped arrangement. PLS considerably shorter than abdomen, tS comparatively short.

Legs

Measurements see above. Very short compared with body size. III comparatively elongate.

Epigyne

Without a pocket near lateral border.

Vulva

Small, compact, parts closely adjacent, medially with a narrow, transverse bar, with 2 receptaculi seminis, the ventral receptaculum much surpassing the dorsal receptaculum and both laterally glandulose. Vulva laterally with a large membranous area partly covering the receptacula. Intraductory ducts short, directed posteriorly, but strongly curved outwards.

Male

Unknown.

Variation

Unknown.

Etymology

Named in honour of Barbara York Main, well known authority of Australian spiders.

Distribution

Inland southwestern Australia. Known only from type locality.

Habits

Unknown. Holotype collected in January.

Relationships

This species is rather isolated, but perhaps remotely related to eastern *T. brevipes* Baehr and Baehr, though certainly less closely than the following species.

Tamopsis triangularis sp. nov.

Figures 17, 18, 26

Holotype

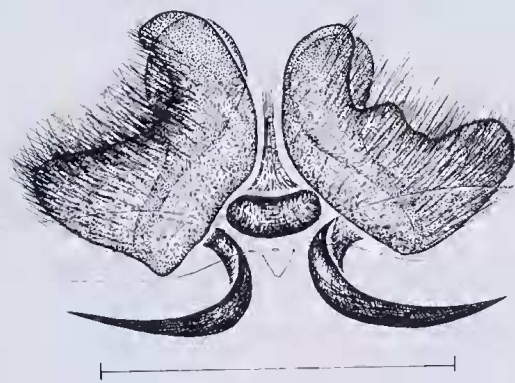
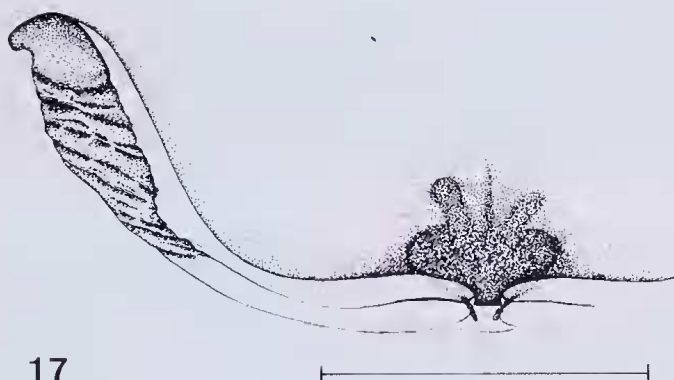
Female, NSW, Yanco Ck., 11 km SW. of Morundah 35.02S, 146.13E, 29 Dec. 1990, A. F. Longbottom S.654 (P46/4), River gums, "sandside" 50 km SW. of Narrandera (WAM 92/140).

Paratypes

2 females, same data (WAM 92/141-142, CBM).

Diagnosis

Species of the *queenslandica*-group, though most closely related to *T. brevipes* Baehr and Baehr. Distinguished from that species by the plate covering the lateral pocket in female epigyne having a very large medio-caudal part bearing conspicuous ridges.



Figures 17 and 18 *Tamopsis triangularis* sp. nov. Female. 17. Epigyne. Scale: 0.5 mm. 18. Vulva. Scale: 0.25 mm.

Description

FEMALE HOLOTYPE

Measurements

Length: 5.6 mm; cephalothorax length: 2.2 mm; width: 2.25 mm; abdomen length: 3.4 mm; width: 3.7 mm. Legs: I: 11.8 mm, II: 11.85 mm, III: 4.9 mm, IV: 11.7 mm; ratio: 1:1:0.41:0.99. Ratio LB/LL: 0.47. PLS length: 2.5 mm; bS: 0.5 mm; tS: 2.0 mm. Length ratio PLS/abdomen: 0.74. Eye ratio: 1:0.46:0.97:1.05.

Colour

Cephalothorax dark yellow to light brown, eye area and lateral border black, three radial spots near lateral border, and base conspicuously light yellow, posteriorly of eyes with a whitish median stripe. Clypeus at base more or less dark yellow, but with an oblique piceous stripe converging to lower border, face laterally of AME and PME with conspicuous yellow spot. Chelicerae light. Abdomen whitish, though rather strongly mottled, a wide, lancet-shaped median stripe, the wide lateral borders, and some transverse cross bars in middle and posterior third dark piceous, colour of abdomen prevailing light. Legs, palpi, and PLS fairly conspicuously annulate. Basal segment of palpi at outer and inner surface of apex with conspicuous black stripe. Ventral surface light.

Cephalothorax

Almost circular, even slightly wider than long, much narrower than abdomen, fairly convex. Eye area depressed, clypeus c. half as high as eye area. PLE but slightly larger than AME and PME, which are almost equal in size, ALE fairly large. Distance AME/AME $< 2/3$ of diameter of AME, distance AME/ALE c. diameter of AME, distance PME/PME $< 1/2$ of diameter of PME, distance PME/PLE c. as long as diameter of PME. Chelicerae < 2 x as long as wide. Sternum pentagonal, sparsely hirsute.

Abdomen

Slightly wider than long, much wider than cephalothorax, extremely trapezoid, posteriorly widest. Dorsal surface with 5 pairs of rather circular to fairly elliptoid muscular pits, 1st and 3rd pits large, 3rd remarkably elliptoid. Ventral muscular pits in a wide, v-shaped arrangement. PLS considerably shorter than abdomen, tS comparatively short.

Legs

Measurements see above. Very short compared with body size. III comparatively elongate.

Epigyne

With a slit-like pocket near lateral border covered by a large sclerotized plate, medially of pocket with a large plate reaching halfway to middle and covered by several conspicuous ridges.

Vulva

Small, compact, parts closely adjacent, medially with a narrow, transverse bar, with 2 receptaculi seminis, ventral receptaculum laterally strongly excised and completely glandulose, covering completely the dorsal receptaculum. Intraductory ducts short, not crossing receptaculum seminis, posteriorly strongly curved laterally.

FEMALE PARATYPE 1 (WAM 92/141)

Measurements

Length: 5.95 mm; cephalothorax length: 2.2 mm; width: 2.25 mm; abdomen length: 3.75 mm; width: 4.1 mm. Legs: I: 11.7 mm, II: 11.45 mm, III: 4.75 mm, IV: 11.1 mm; ratio: 1:0.98:0.41:0.95. Ratio LB/LL: 0.51. PLS length: 2.6 mm; bS: 0.5 mm; tS: 2.1 mm. Length ratio PLS/abdomen: 0.69. Eye ratio: 1:0.45:0.99:1.04.

Male

Unknown.

Variation

Slight variation noted only in relative length of legs and PLS.

Etymology

Alludes to the striking triangular shape of abdomen.

Distribution

Riverina country in southern central New South Wales. Known only from type locality.

Habits

Largely unknown, type series collected in December on "river gums".

Relationships

This species is certainly very closely related to *T. brevipes* Baehr and Baehr from eastern New South Wales. It is perhaps only a western transmontane subspecies. But any decision must await the discovery of the males of both species.

circumvidens-group

Tamopsis circumvidens Baehr and Baehr, 1987

Tamopsis circumvidens Baehr and Baehr, 1987: 378; 1992: 70.

New record: WA: 1 female, Gairdner Range 30.19S, 115.17E, Feb. 1990, G. Harold (WAM 92/124).

This very distinctive species was until now known from two localities in inland southwestern Australia and several localities in western Victoria. The new record enlarges the range slightly to the west and demonstrates that this species is distributed right through southern semiarid Australia.

tropica-group

Tamopsis leichardtiana Baehr and Baehr, 1987

Figure 26

Tamopsis leichardtiana Baehr and Baehr, 1987: 382.

New record: WA: 1 female, Tim Ealey Hill 21.35'20"S, 118.59'00"E, 22 April 1989, M. S. Harvey (WAM 92/144).

This species was hitherto known from a single female from northwestern Queensland. The new record enlarges the known range of this species right through northern Australia to the Pilbara region in northwestern Australia. This is evidence of an inland distribution in arid country of northern Australia. The specimen is fully coloured (better than the holotype which was moulting) and exhibits a striking pattern: the abdomen bears two large, conspicuous, white spots in posterior half around 3rd muscular pit, middle of clypeus and base of chelicerae are strikingly black, and legs, palpi, and PLS are conspicuously annulate.

Tamopsis gracilis sp. nov.

Figures 19, 20, 27

Holotype

Male, W. A.: Gorge SW. of Mt Robinson, 23.08S, 118.54E, 27 Aug. 1990, A. F. Longbottom S.474 (WAM 92/132).

Diagnosis

Small, very long-legged species of the *tropica*-group, very similar to *T. fickerti* (L. Koch), but distinguished from that species by much smaller size, less distinctive pattern, and male palpus with much wider excavate process at apex of median apophysis and straight instead of sinuate lateral apophysis which is less voluminous at apex.

Description

MALE HOLOTYPE

Measurements

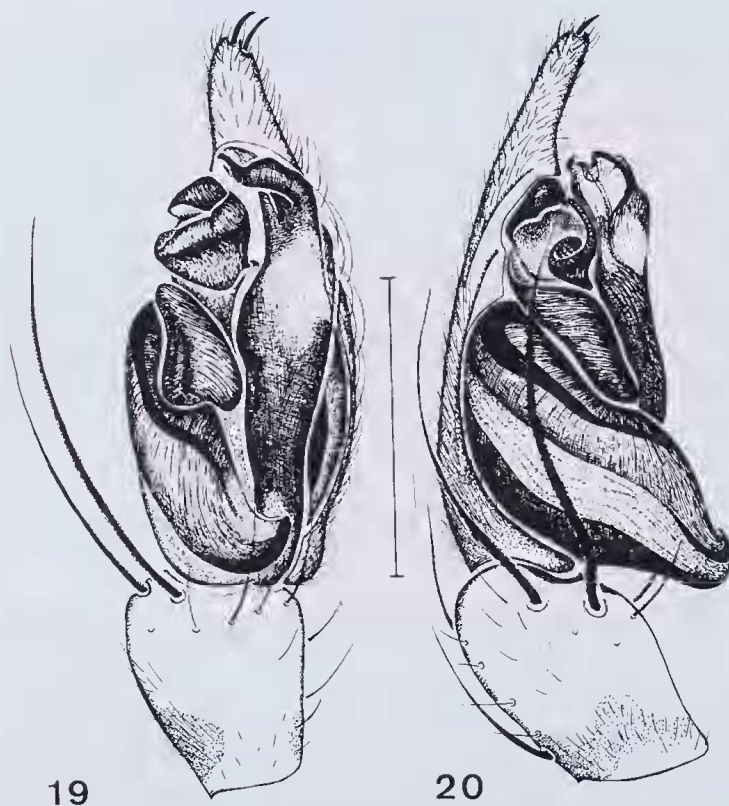
Length: 3.7 mm; cephalothorax length: 1.6 mm; width: 1.6 mm; abdomen length: 2.1 mm; width: 1.7 mm. Legs: I: 16.65 mm, II: 15.52 mm, III: 5.22 mm, IV: 14.64 mm; ratio: 1:0.93:0.31:0.88. Ratio LB/LL: 0.22. PLS length: 1.98 mm; bS: 0.48 mm; tS: 1.5 mm. Length ratio PLS/abdomen: 0.94. Eye ratio: 1:0.30:0.69:0.81.

Colour

Cephalothorax dark yellow, part of eye area and lateral borders narrowly black, some radial spots near lateral and posterior borders indistinctly lighter. Clypeus in middle basally with black stripe, ventrally white. Chelicerae and terminal segment of palpus black. Abdomen yellowish, pattern very indistinct (specimen in the course of shedding). Legs and PLS distinctly annulate. Ventral surface light.

Cephalothorax

Almost circular, almost as wide as abdomen, moderately convex. Eye area strongly raised, laterally not concave, clypeus c. as high as eye area. AME by far largest, PLE slightly larger than



Figures 19 and 20 *Tamopsis gracilis* sp. nov. Male palpus. 19. Ventral view. 20. Lateral view. Scale: 0.5 mm.

PME, ALE small. Distance AME/AME slightly > diameter of AME, distance AME/ALE c. 1/3 of diameter of AME, distance PME/PME slightly > 1/3 of diameter of PME, distance PME/PLE slightly < diameter of PME. Chelicerae < 2 x as long as wide. Sternum pentagonal, sparsely hirsute.

Abdomen

Distinctly longer than wide, slightly wider than cephalothorax, elliptoid, widest in middle. Dorsal surface with 5 pairs of rather circular muscular pits. Ventral muscular pits in a wide, v-shaped arrangement. PLS slightly shorter than abdomen, tS comparatively short.

Legs

Measurements see above. Very elongate, III comparatively short.

Palpus

Median apophysis rather short, contorted, apically wide, apex with a wide membranous area and a scopula-like organ within. Lateral rim with sharp edge, anteriorly with a wide, excavate process, not hooked at tip. Lateral apophysis stout, strongly contorted, apex slightly excised.

Female

Unknown.

Variation

Unknown.

Etymology

Alludes to the smaller size compared with the closely related *T. fickerti*.

Distribution

Hamersley Ranges, northwestern Australia. Known only from type locality.

Habits

Unknown. Holotype collected in August "in gorge".

Relationships

This species is certainly closely related to southeastern *T. fickerti* (L. Koch) as can be seen by the very similar male palpus. For differences, see diagnosis. It may be the western vicariant of the widespread eastern species.

***Tamopsis perthensis* Baehr and Baehr, 1987**

Tamopsis perthensis Baehr and Baehr, 1987: 386; 1989: 319; 1992: 75.

New record: WA: 1 female, Mt. Cooke, 32.25S, 116.18E, 25 February 1992, M. S. Harvey and J. M. Waldock (WAM92/131); 1 male, WA: Yanchep, 7 Oct. 1992, M. S. Harvey (WAM93/35).

The commonest species in southwestern Australia. The specimens were "hand collected" and captured "on *Melaleuca* trunk".

***Tamopsis occidentalis* Baehr and Baehr, 1987**

Tamopsis occidentalis Baehr and Baehr, 1987: 387; 1989: 319; 1992: 76.

New records: WA: 1 female, Ashburton River, Near Urala Stn crossing, Aug. 1988, G. Crane; 1 female, Charlies Knob, Gibson Desert Nature Reserve, 25.03'S, 124.59'E, 18 Aug. 1990, A. E. de Jong (71494.9) (WAM 92/121).

This species is widespread in northwestern Australia between about Gascoyne River and the southern fringe of Great Sandy Desert (Baehr and Baehr 1987, 1992). The second new record, however, extends the known range far to the east deeply into the desert areas of central Western Australia.

***Tamopsis marri* Baehr and Baehr, 1989**

Figure 27

Tamopsis marri Baehr and Baehr, 1989: 312; 1992: 75.

New record: WA: 7-8 km WNW. of Point Salvation, 28.12S, 123.36E, 8-10 Nov. 1990, E. R. Pianka (WAM 92/135).

This species is very closely related to *T. occidentalis* Baehr and Baehr and is presumably the southern vicariant of the latter. It was previously known from two localities in the southernmost part of southwestern Australia. The present record extends the known range somewhat to the northeast, but is still far outside the known range of *T. occidentalis*. The mentioned specimen was caught in "pitfall traps".

***Tamopsis longbottomi* sp. nov.**

Figures 21, 22, 23, 24, 27

Holotype

Male, NT: Carpentaria H'way Rest area, 168 km E. of Stuart H'way, 13 Aug. 1991, A. F. Longbottom S.727 (WAM 92/136).

Paratype

Female, NT: Kakadu, Muirella Park, 16 Aug. 1980, H. Parnaby, ex Parnaby collection, *Tamopsis* sp. det. M Gray 1989 (AMS KS 20467).

Diagnosis

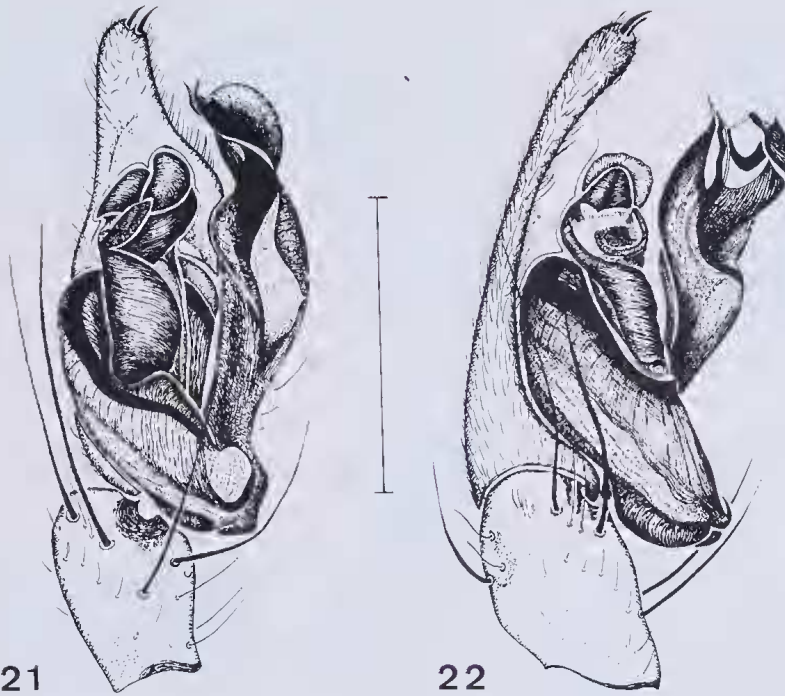
Very long-legged species of *tropica*-group, closely related to the *fickerti-fitzroyensis*-lineage, in shape of male palpus perhaps most similar to *T. marri* Baehr and Baehr and *T. fickerti* (L. Koch), in shape of female genitalia most resembling *T. leichardtiana* Baehr and Baehr and *T. rossi* Baehr and Baehr, but in view of the scapus in the epigyne also *T. fickerti* (L. Koch). Distinguished by very dark pattern of cephalothorax, especially eye area, clypeus, and chelicerae, apex of median apophysis with median excavate process triangular and very depressed and lateral process large and surpassing median process, and lateral apophysis strongly contorted and sinuate, apically wide, not excised, but bearing two short spines.

Description

MALE HOLOTYPE

Measurements

Length: c. 4.2 mm; cephalothorax length: 1.8 mm; width: 1.75 mm; abdomen length: c. 2.4 mm; width: 1.95 mm. Legs: I: 20.1 mm, II: 18.2 mm, III: 5.6 mm, IV: 16.4 mm; ratio: 1:0.91:0.28:0.82.



Figures 21 and 22 *Tamopsis longbottomi* sp. nov. Male palpus. 21. Ventral view. 22. Lateral view. Scale: 0.5 mm.

Ratio LB/LL: 0.21. PLS length: 2.5 mm; bS: 0.55 mm; tS: 1.95 mm. Length ratio PLS/abdomen: 1.05. Eye ratio: 1:0.25:0.66:0.70.

Colour

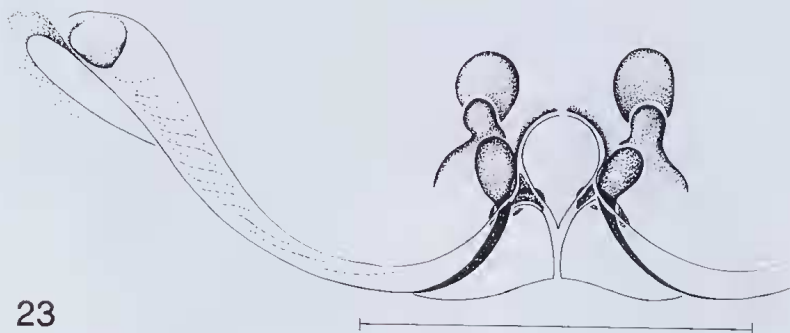
Cephalothorax dark yellow to piceous, anterior part of eye area and lateral borders black, some radial spots near lateral and posterior borders indistinctly lighter. Clypeus and base of chelicerae black. Posterior part of eye area conspicuously light, though with a dark median stripe. Basal segment of palpus with black stripe on inner and outer surfaces. Abdomen whitish, wide median lancet-shaped stripe and wide lateral borders conspicuously black, in posterior third with several dark transverse cross bars. Legs and PLS barely annulate, though dark on inner and outer surfaces. Ventral surface light.

Cephalothorax

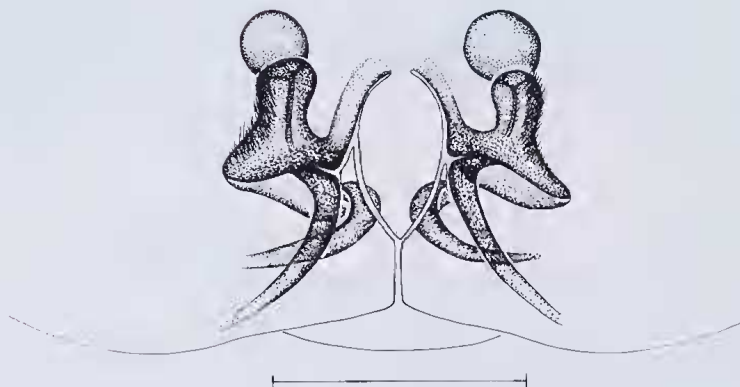
Almost circular, slightly narrower than abdomen, moderately convex. Eye area strongly raised, laterally not concave, clypeus c. as high as eye area. AME by far largest, PLE barely larger than PME, ALE small. Distance AME/AME c. 2/3 of diameter of AME, distance AME/ALE c. 1/3 of diameter of AME, distance PME/PME slightly >1/3 of diameter of PME, distance PME/PLE slightly <diameter of PME. Chelicerae <2x as long as wide. Sternum pentagonal, sparsely hirsute.

Abdomen

Distinctly longer than wide, wider than cephalothorax, elliptoid, widest in middle. Dorsal surface with 5 pairs of rather circular muscular pits. Ventral muscular pits in a wide, v-shaped arrangement. PLS slightly longer than abdomen, tS comparatively short.



23



24

Figures 23 and 24 *Tamopsis longbottomi* sp. nov. Female. 23. Epigyne. Scale: 0.5 mm. 24. Vulva. Scale: 0.25 mm.

Legs

Measurements see above. Very elongate, III comparatively short.

Palpus

Median apophysis rather short, contorted, apically wide, apex with a wide membraneous area and a scopula-like organ within. Lateral rim with sharp edge, anteriorly with a wide, triangular, apically wide, very depressed, excavate process, not hooked at tip. Lateral part of apex with a large bulbous process distinctly surpassing median process. Lateral apophysis stout, strongly contorted, apex barely excised, though gently bisinuate, with two short spines at borders and a conspicuous, semicircular, sclerotized strap within apical membrane.

FEMALE PARATYPE

Measurements

Length: 4.4 mm; cephalothorax length: 1.85 mm; width: 1.85 mm; abdomen length: 2.5 mm; width: 2.05 mm. Legs: I: 15.5 mm, II: 15.2 mm, III: 5.1 mm, IV: 13.7 mm; ratio: 1:0.92:0.31:0.83. Ratio LB/LL: 0.27 PLS length: 2.8 mm; bS: 0.65 mm; tS: 2.15 mm. Length ratio PLS/abdomen: 1.12. Eye ratio: 1:0.30:0.69:0.75.

Colour

Colour of cephalothorax rather similar to holotype, eye area dark. Abdomen almost uniformly dark, though with many yellow spots. Median lancet-shaped stripe and lateral borders barely marked, at apex with several dark transverse cross bars. Legs and PLS barely annulate, though dark on inner and outer surfaces. Ventral surface light.

Cephalothorax

Rather similar to male. Clypeus almost as high as eye area. AME by far largest, PLE slightly larger than PME, ALE small. Distance AME/AME c. $2/3$ of diameter of AME, distance AME/ALE slightly $>1/3$ of diameter of AME, distance PME/PME slightly $>1/2$ of diameter of PME, distance PME/PLE slightly $<$ diameter of PME.



Figure 25 Distribution of *Hersilia mimbi* sp. nov.: ■; *Tamopsis depressa* Baehr and Baehr: ●; *T. riverinae* sp. nov.: ◆; *T. facialis* sp. nov.: ▲; *T. piankai* sp. nov.: ▼.



26

Figure 26 Distribution of *Tamopsis harveyi* sp. nov.: ▲ ; *T. gibbosa* sp. nov.: ● ; *T. mainae* sp. nov.: ◆ ; *T. triangularis* sp. nov.: ▼ ; *T. leichardiana* Baehr and Baehr: ■ .

Abdomen

Rather similar to holotype. PLS distinctly longer than abdomen, tS comparatively short.

Legs

Measurements see above. Slightly shorter than in male, though still very elongate, III comparatively short.

Epigyne

With an opening immediately at lateral border covered by a plate. Medially with an elongate oval scapus.

Vulva

Apical part of dorsal receptaculum seminis circular, markedly separate, ventral receptaculum seminis horizontally bent, introductory duct conspicuously curved outside.

Variation

Due to limited material little variation noted.

Etymology

Named in honour of the collector of this as well as of several other interesting specimens.

Distribution

Northern half of Northern Territory.

Habits

Largely unknown. Holotype collected "dead in red-back web (*Latrodectus*)", paratype "on trunk of paperbark in swampy unburnt area". So far collected in August.

Relationships

This species belongs to the *fickerti-fitzroyensis*-lineage of the *tropica*-group that combines a group of at least 8 highly apomorphic and closely related species. In shape of palpus *T. longbottomi* resembles most *T. fickerti* (L. Koch) and *T. marri* (Baehr and Baehr), but this cluster of species is so similar that a reasonable decision, as to which species *T. longbottomi* is most closely related, is very difficult.

In shape of female genitalia *T. longbottomi* resembles *T. leichardtiana* Baehr and Baehr and *T. rossii* Baehr and Baehr, but it is distinguished from both, inter alia, by the median scapus in the epigyne. With regard to this scapus *T. longbottomi* resembled also *T. fickerti* (L. Koch), the single species having a comparable scapus. At the same time it is distinguished from *T. fickerti* by different shape of the scapus and by absence of the swollen introductory duct coiled around the base of the receptaculum seminis. In view of the female genitalia *T. longbottomi* may take an intermediate position between the three mentioned species. This position, however, will be only better understood, when males of both species, *T. leichardtiana* and *T. rossii* are known.

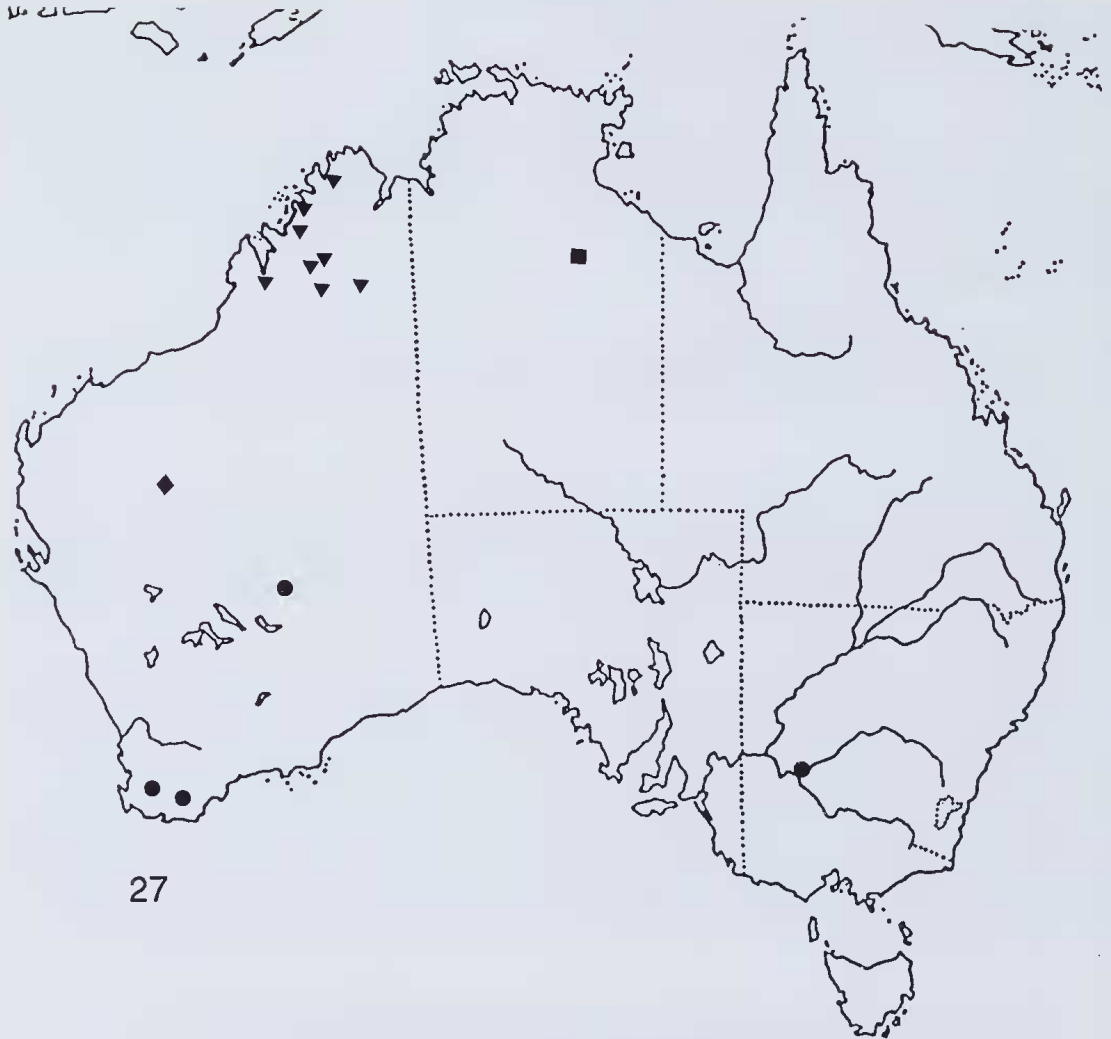
Tamopsis fitzroyensis Baehr and Baehr, 1987

Figure 27

Tamopsis fitzroyensis Baehr and Baehr, 1987: 389.

New records: WA: 1 male, 6 km E. of Mt. Talbot, Walcott Inlet, Site 19/2, 16°27'30"S, 124°50'30"E, B. Y. Main (FN/2) (BYM 88/K1041), 18 June 1988 (WAM 92/152); 1 female, 6 km E. of Mt. Talbot, Walcott Inlet, Site 19/2, 16°27'30"S, 124°50'30"E, B. Y. Main (FN/4) (BYM 88/K1085), 19 June 1988 (WAM 92/153); 1 female, Mt. Trafalgar, 15°16'50"S, 124°04'05"E, 16 June, 1988 Site 14/3, B. Y. Main (FN 5) (BYM 88/K923) (WAM 92/150); 1 female, 13.5 km NE. of Crystal Head, SW Osborne Island, 14°23'S, 125°57'E, N. Mc Kenzie (site 11/1) (BYM 88/K753), 10.6.1988 (WAM 92/151); 1 male, 1 female, WA. Manning Gorge 16°44'S, 125°57'E, 24 Dec. 1991, G. Harold (WAM 93/19-20).

This is a widespread species in the Kimberley Division. The mentioned specimens were caught in June and in December in "Rainforest", "on bark", "under cliffs, on *Terminalia* bark", and "on boab tree".



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Figure 27 Distribution of *Tamopsis gracilis* sp. nov.: ◆ ; *T. marri* Baehr and Baehr: ● ; *T. longbottomi* sp. nov.: ■ ; *T. fitzroyensis* Baehr and Baehr: ▼ .

DISCUSSION

Biology

Even after some years of intensive work, both collecting and taxonomic, still rather little is known on the biology of the Australian Hersiliidae. Only a few observations have been made on hunting behaviour and prey, no observations at all are available on courtship and mating, and very little is known on propagation and development. And, surprisingly enough, even the simple habitat preference of most species is unknown, in spite of the knowledge of over 45 species.

The situation, however, is different according to the respective species-groups. Evidently the species of the genus *Tamopsis* are easily divided in two main groups: a group of high-eyed species that includes actually three presumably related species groups (*nanutarrae*-, *arnhemensis*-,

tropica-groups), and a morphologically much more diverse group of more or less low-eyed species that comprises all other species groups.

From our own observations on several species of the high-eyed group and from label data and the few remarks in the very sparse literature, we are convinced that the high-eyed species live generally on the trunks of trees, preferably eucalypts but also other trees such as *Melaleuca*, *Ficus*, *Adansonia*, *Terminalia*, and certain other rain forest species. Sometimes they are found on boulders, walls, and fences. Generally they seem to prefer vertical structures, where they usually sit motionless head foremost in small fissures or depressions waiting for prey. It seems reasonable to assume that the strongly raised eye hill helps them to look over elevations or to obtain a larger visual field on the curved surface of tree trunks. These species are also usually very long-legged and they are extremely fast runners when disturbed, running around the trunk to reach a hiding place.

On the contrary, very little is known in these respects of the low-eyed species which have been thus far rarely collected in larger numbers. Most label records of collecting circumstances, where available, are rather curious and do not seem to give hints to the actual habitat. Specimens have been collected for example "active on ground", "in pitfall traps", "on rusty pipe ladder in house", "on diesel fuel tank", "on single thread on dead scrub", "inside a house", "on fern", "in mud wasp nest", "under wooden plank on beach", "while harvesting" etc. A better insight into the real habitats give perhaps the few observations of spiders collected by "beating foliage, shrubs, or twigs". We think that small branches and even twigs are perhaps the localities where the low-eyed species usually occur. This would explain the depressed eye area and the generally much shorter legs in these species. If this opinion would prove to be true, most low-eyed species are known from accidental collecting only and they have been hardly ever searched in their real habitat. We thus expect that use of appropriate collecting methods in future will again considerably raise the number of species especially in the low-eyed group.

Distribution

The discovery of a second species of genus *Hersilia* in Australia enlarges the range of this genus to the west, but is not surprising. This genus is certainly a rather recent invader from the Oriental region into Australia. The two Australian species belong to the same apomorphic species-group within the diverse genus *Hersilia* like all species known from New Guinea (Baehr and Baehr, 1993). The slightly more apomorphic status of the Western Australian *H. mimbi* compared with the northern *T. australiensis* suggests that the original stock of *Hersilia* invaded Australia from the north, probably via Arnhem Land, and later split into another population in northwestern Australia.

The distribution patterns of the new species of the genus *Tamopsis* and of those species the ranges of which have been considerably enlarged in this paper, are more difficult to explain, especially with regard to the low-eyed species in view of the opinions expressed in the previous section.

In the light of the recent discoveries it turns out that the number of species in the western half of Australia is not perceptibly lower than in the east. On the contrary, in some groups (e.g. *queenslandica*-, *tropica*-groups) clusters of species apparently exist in Western Australia making its fauna even more diverse than that of eastern Australia, and thus compensating the majority of primitive, monotypic species-groups in the east. Moreover, it may be generally assumed that in most species-groups vicariants of eastern species exist in southwestern, northwestern, or central Australia. Certainly, the biogeographical history of most species-groups has been more complex than we assumed in our revision, although the general patterns are probably still true.

The additional, though still scanty material extends considerably the ranges of several species: In the north across most or the whole of the northern part of interior Australia (*T. depressa*, *T. leichardiana*), or at least far into the central arid regions (*T. occidentalis*), and in the south through the mallee regions of southwestern Australia to western Victoria (*T. circumvidens*, *T. transiens*, *T. marri*) (Baehr and Baehr 1992). All those very widely ranging species, however, are adapted to arid or semiarid regions, where they perhaps live mainly on the widespread river gum (*Eucalyptus camaldulensis*), at least in the north, and in the south also on certain mallee species. Hence, their extensive ranges are easily understood.

In certain cases (e.g. in the *platycephala*-group), the range extension helps to clarify the difficult biogeographical situation. Here, the recently discovered wide range of *T. depressa* makes biogeographically much better sense, because this species is more closely related to eastern *T. platycephala* than to western *T. ampli thorax*.

In the *eucalypti*-group and in the relationship of *T. brevipes* the distribution patterns are fairly simple. *T. riverinae*, and *T. mainae* and *T. triangularis*, respectively, are western, inland vicariants to an eastern species, namely *T. eucalypti* and *T. brevipes*, respectively. The western vicariants are generally more apomorphic, and they seem to have evolved by geographic expansion of an eastern stock and later isolated refugia.

In the rest of the *queenslandica*-group the situation is more difficult and the present knowledge should not be regarded as conclusive, because certainly additional species will be discovered and may change the situation once more. However, western *T. facialis* and *T. harveyi*, respectively, are perhaps simply the western vicariants or sister species of the eastern *T. centralis* and *T. raveni*, respectively.

In the *tropica*-group the rather simple picture given in the revision has been altered even more due to the discovery of several new species in recent years. Thus, in the *fickerti-fitzroyensis*-lineage which comprises the most apomorphic species of the group, now 8 instead of 4 species are known (excluding species known only from females) and their phylogenetic relations are still rather obscure due to their very close relationships. As a consequence, our idea of a simple, clockwise pattern of range spreading and isolation with the result that the most plesiomorphic species lives in eastern Australia (*T. fickerti*) and the most apomorphic species in the northern part of northwestern Australia (*T. fitzroyensis*), was certainly oversimplified, although the general trend seems still to be true. Especially in Western Australia the evolution apparently did not take place in a single-track direction; there must have been multiple events (Baehr and Baehr 1989, 1992).

To conclude, it becomes more and more evident that Western Australia has been a major centre of evolution within Hersiliidae. This might have been caused by the generally arid conditions in the whole of Western Australia where, however, some faunal refugia persisted. Diversification of taxa were thus promoted by even minor climatic changes. The generally more humid and better "buffered" climate in the east, on the other hand, apparently more or less prevented the development of such faunal refugia and speciation was more limited.

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REFERENCES

- Baehr, B. and Baehr, M. (1987). The Australian Hersiliidae (Arachnida: Araneae): Taxonomy, phylogeny, zoogeography. *Invertebr. Taxon.* 1: 351-437.

- Baehr, B. and Baehr, M. (1988). On Australian Hersiliidae from the South Australian Museum (Arachnida: Araneae). Supplement to the revision of the Australian Hersiliidae. *Rec. S. Aust. Mus.* 22: 13-20.
- Baehr, B. and Baehr, M. (1989). Three new species of genus *Tamopsis* Baehr and Baehr from Western Australia (Arachnida, Araneae, Hersiliidae). Second supplement to the revision of the Australian Hersiliidae. *Rec. West. Aust. Mus.* 14: 321-329.
- Baehr, B. and Baehr, M. (1992). New species and new records of genus *Tamopsis* Baehr and Baehr, (Arachnida, Araneae, Hersiliidae). Third supplement to the revision of the Australian Hersiliidae. *Rec. West. Aust. Mus.* 16: 61-77.
- Baehr, M. and Baehr, B. (1993). The Hersiliidae of the Oriental region including New Guinea. Taxonomy, phylogeny, zoogeography (Arachnida, Araneae). *Spixiana, suppl.* 19: 1-96.
- Kraus, O. (1984). Hoyers Gemisch statt Polyvinyl-Lactophenol. *Mikrokosmos* 73: 54-55.